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ABSTRACT

Presented are 30 papers given at a 5-day international conference on serving deaf-blind children. Additionally provided are the conference agenda, a review of the conference, reports of the nominations and resolutions committees, and a list of conference participants. Among the papers are the following titles: "Programs for Non-Verbal Children", "A Program for Pre-Verbal Children", "Teaching a Mother Tongue to Deaf Blind Children", "Learning Difficulties and Deaf Blind Children", "The Teaching of a Manual-Sign as a Diagnostic Tool with Deaf Blind Children", "Training or Education Learning Patterns of Younger Deaf Blind Children", "Toward Assessing the Language Level of Older Deaf Blind", "Social Problems of Deaf Blind Children", "Temperament of Behavioral Style of Children with Congenital Rubella", "The Deaf Blind Infant--A Rationale For and an Approach To Early Intervention", "Earliest Communication with a Deaf Blind Child", "Parents of Deaf Blind Children--Some Immediate and Continuing Needs", "Prevention and Treatment of the Rubella Syndrome", "Training of Personnel for the Education of Deaf Blind Children", "Training of Child Care Personnel for Deaf Blind Children", "Systematic Studies of Stimulus Sensitivity in Deaf Blind Preschool Children", "Report from the National Center for Deaf Blind Youths and Adults", "Deaf Blind Children in the Emergent Countries", "Sexual Problems of Deaf Blind Children", and "The Expression of Sexual Needs of the Deaf Blind Adolescent as Perceived by Classroom Teachers". (DB)

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FOURTH INTERNATIONAL CONFERENCE ON DEAF-BLIND CHILDREN

August 22-27, 1971
at

PERKINS SCHOOL FOR THE BLIND

175 North Beacon Street
Watertown, Massachusetts, U.S.A.

Sponsored by

The Committee on Deaf-Blind Children
The International Council of Educators
of Blind Youth

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This report is dedicated to the memory of
ROSE M. VIVIAN
whose untimely death in September 1971
ended a distinguished career in the
service of deaf-blind children at Perkins

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CONTENTS

Page
Deaf-Blind Committee v
Conference Program vii
Keynote Address—Services for Deaf-Blind Children 1
Programs for Non-Verbal Children 9
A Program for Pre-Verbal Children 18
Program for Verbal Deaf-Blind Children 28
Teaching a Mother Tongue to Deaf-Blind Children 35
Learning Difficulties and Deaf-Blind Children 41
The Teaching of a Manual-Sign as a Diagnostic Tool with Deaf-Blind Children 62
Training or Education Learning Patterns of Younger Deaf-Blind Children 85
Toward Assessing the Language Level of Older Deaf-Blind 107
Manual vs. Oral Instruction, Guidelines for Choice 124
The Effect of Visual Defects on Reception of Communication/Language Signals 128
Continental Programs 150
British Programs 173
Social Problems of Deaf-Blind Children 181
Temperament or Behavioral Style of Children with Congenital Rubella 195
The Deaf-Blind Infant: A Rationale for and an Approach To Early Intervention 212
Earliest Communication with a Deaf/Blind Child 226
Parents of Deaf-Blind Children: Some Immediate and Continuing Needs 228
Prevention and Treatment of the Rubella Syndrome 250
Possible Contributions from Pediatric Neurology and Neuropathology to the Understanding and Management of Congenital Rubella Children 258
Training of Personnel for the Education of Deaf/Blind Children 264
Multiple Handicapped (Deaf-Blind) Teacher Training Program—San Francisco State College 273
Training of Child Care Personnel for Deaf-Blind Children 279
Report on Training Child Care Workers 287
Interim Report on Survey of Multi-Handicapped Blind Leavers in Britain 297
Systematic Studies of Stimulus Sensitivity in Deaf-Blind Preschool Children 308
Report from the National Center for Deaf-Blind Youths and Adults 316
Deaf-Blind Children in the Emergent Countries 321
Sexual Problems of Deaf-Blind Children 328
The Expression of Sexual Needs of the Deaf-Blind Adolescent as Perceived by Classroom Teachers 333
The Conference in Retrospect 340
Report of the Nominations Committee 346
Report of the Resolutions Committee 349
List of Participants 352

ACKNOWLEDGMENTS

My sincere thanks are due to all contributors of papers, some of whom were asked to participate at very short notice. My thanks are also due to the Chairmen of Sessions, and to the large number of the Perkins staff who labored untiringly to assure the comfort and convenience of both our American and Overseas guests.

In particular, of course, I am grateful to the other members of the Program Committee for their assistance and advice and for their understanding of my problems when they are faced with cancellation by speakers.

Special thanks are due to Miss Margaret McCloskey, my secretary, for her labors both before, during, and after the conference, including the production of these Proceedings.

EDWARD J. WATERHOUSE, *Chairman*
of the Committee 1968-71, 1971-1974

Copies of these Proceedings may be obtained from the Perkins School for the Blind, Watertown, Massachusetts 02172 U.S.A. for U.S. $5.00 postpaid.

DEAF-BLIND COMMITTEE 1968-1971

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Dr. Johannes Van Dijk	Netherlands
Mr. Michael Colborne Brown	United Kingdom
Miss Joan Shields	United Kingdom
Miss S. Ostenby	Norway
Dr. Donald Calvert	United States of America
Dr. Jeanne Kenmore	American Foundation for Overseas Blind, Paris
Dr. Peter J. Salmon	World Council for the Welfare of the Blind
Chairman	
Dr. Edward J. Waterhouse	U.S.A.

The above have constituted the program committee for this conference

DEAF-BLIND COMMITTEE 1971-1974

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SPONSORS OF THE CONFERENCE

The Executive Committee of the World Council for the Welfare of the Blind contributed $1,500 towards the travel expenses of delegates from overseas from a bequest which Helen Keller left to the Council for the benefit of the deaf-blind.

The remainder of the costs, including several further travel grants, were underwritten by the Trustees of Perkins.

CONFERENCE PROGRAM

SUNDAY AUGUST 22

7:15- 8:30 p.m. — Opening Session
Chairman. Edward J. Waterhouse, Director of Perkins
Greetings from Perkins.
  Samuel Cabot. Vice President of the Perkins Corporation.
Greetings from the Commonwealth of Massachusetts
  William A. Philbrick, Jr., Director of Special Education
Response to Greetings
  Theodore Pauw. Headmaster. School for the Blind. Worcester. Cape Province. Republic of South Africa
Keynote Address: Services for Deaf-Blind Children
  Robert M. Dantona. Coordinator. Center and Services for Deaf-Blind Children, Bureau of Education of the Handicapped, United States Office of Education, Washington, D.C.

8:30 p.m. — Informal Reception.

MONDAY MORNING AUGUST 23

9:00- 9:30 a.m. Business Session
Chairman — Dr. E. J. Waterhouse, Chairman Committee on Deaf-Blind Children, International Council of Educators of Blind Youth
Report of Program Committee
Appointment of Committees
  1. Resolutions Committee
  2. Nominations Committee

PROGRAMS FOR DEAF-BLIND CHILDREN
Non-Verbal, Pre-Verbal, Verbal

9:30-10:30 a.m. Chairman — Keith Watkins, Principal, North Rocks School for Blind Children, Sydney, New South Wales, Australia
Programs for Non-Verbal Children
  Mr. John Southwell, Lea Castle Hospital, Wolverley, Worcs., England

10:45-12:00 noon Chairman — Dr. William D. May, Director, New York Institute for the Education for the Blind
A Program for Pre-Verbal Children
  Khogendra N. Das, Director, Deaf-Blind Department, New York Institute for the Education of the Blind

MONDAY AFTERNOON AUGUST 23

1:30- 2:30 p.m. Program for Verbal Children
Chairman — Captain Olive M. Drummond, Teacher of Deaf-Blind Children, Salvation Army School for the Blind, Kingston, Jamaica
Program for Verbal Deaf-Blind Children
  Mrs. Rose M. Vivian, Principal, Deaf-Blind Department, Perkins

2:30- 3:30 p.m. Chairman — Stewart E. Armstrong, Superintendent, Ontario School for the Blind, Brantford, Ontario, Canada

Teaching a Mother Tongue to Deaf-Blind Children

Miss Joan Shields, Director of Deaf-Blind Unit, Condover Hall School for Blind Children with Additional Handicaps, Condover, Shropshire, England

MONDAY EVENING AUGUST 23

7:15- 8:45 p.m. Chairman — Geoffrey E. Salisbury, Royal Commonwealth Society for the Blind, Representing Zambia

Learning Difficulties and Deaf-Blind Children

Dr. Johannes Van Dijk, Director, Department for Deaf-Blind Children, School for the Deaf, Sint Michielsgestel, Netherlands

TUESDAY MORNING AUGUST 24

9:00-12:00 noon Chairman — Dr. Edward T. Donlon, Syracuse University, Syracuse, New York

ASPECTS OF DIAGNOSIS AND EVALUATION

Gestural Representation of Implement Usage: An Organismic Developmental Study Applied to Deaf-Blind Children.

Dr. Edith Kaplan, Research Associate, Department of Psychiatry, Childrens Hospital, Boston

The Teaching of a Manual Sign as a Diagnostic Tool with Deaf-Blind Children

Miss Nan Robbins, Diagnostician, Deaf-Blind Department, Perkins

Training or Education: Learning Patterns of Younger Deaf-Blind Children.

Toward Assessing the Language Level of Older Deaf-Blind Pupils.

Mrs. Jane Elioseff, Diagnostician, Deaf-Blind Department, Perkins

Subsidiary Papers:

Manual vs. Oral Instruction, Guidelines for Choice.

Miss Nan Robbins

Effect of Visual Defects on Reception of Communication/Language Signals.

Miss Jocelyn Record, Teacher of Deaf-Blind Children, Perkins

TUESDAY EVENING AUGUST 24

DESCRIPTIONS OF EUROPEAN PROGRAMS

7:15- 8:45 p.m. Chairman — Mr. Stig Ericsson, Teacher, Ekeskolan, Skolhem För Blinda, Örebro, Sweden

Continental Programs

Lars Guldager, Assistant Principal, Deaf-Blind Department, Perkins. Formerly with School for the Deaf, Aalborg, Denmark

British Programs

Anthony B. Best, Royal Victoria School for the Blind, Newcastle-on-Tyne, England

WEDNESDAY MORNING AUGUST 25

9:00-10:15 a.m. Chairman — Miss Ursula Sigmundt, Teacher of Deaf-Blind Children, Hannover, West Germany
Social Problems of Deaf-Blind Children
Mrs. Gertrude Stenquist, Supervisor of Child-Care, Perkins
Temperament or Behavioural Style
Dr. Paulina B. Fernandez, Clinical Psychologist, New York University Medical Center, University Hospital, New York City

10:30-12:00 noon Chairman — Miss M. A. Henham-Barrow, O.B.E., Secretary-General, Southern Regional Association for the Blind, England
Parent Counseling
Mrs. Margaret D. Brock, National Association for Deaf-Blind and Rubella Children, England
Subsidiary Papers:
The Deaf-Blind Infant: A Rationale for and an Approach to Early Intervention.
Mrs. Susan A. Mouchka, Parent, California
Earliest Communication with a Deaf-Blind Child
Mrs. Peggy Freeman, M.B.E., National Association for Deaf-Blind and Rubella Children, England
Parents of Deaf-Blind Children: Continuing Needs.
Miss Elizabeth Banta, Parent-Counselor, Perkins

WEDNESDAY AFTERNOON AUGUST 25

1:30- 3:30 p.m. Chairman — Louis Z. Cooper, M.D., Associate Professor of Pediatrics, New York University Medical Center, Bellevue Hospital, New York City
Prevention and Treatment of Rubella Syndrome.
Thomas C. Peebles, M.D., Pediatrician, Assistant Chief, Children's Services, Massachusetts General Hospital
Possible Contributions from Pediatric Neurology and Neuropathology to the Understanding and Management of Congenital Rubella Children.
Robert C. DeLong, M.D., Neurologist, Massachusetts General Hospital

3:45- 4:30 p.m. Chairman — Dr. Van Dijk, Netherlands
Standardised Assessment of Residual Vision in Multi-handicapped Children: A Progress Report.
Louis Z. Cooper, M.D.

WEDNESDAY EVENING AUGUST 25

7:15- 8:45 p.m. Chairman — Miss Josephine Taylor, Education Program Officer, Bureau of Education for the Handicapped, U.S. Office of Education, Washington, D.C.
Training of Personnel for the Education of Deaf-Blind Children.
Keith Watkins, Australia
Subsidiary Papers:
Multiple Handicapped (Deaf-Blind) Teacher Training Program, San Francisco State College.
Dr. Barbara Franklin, Director

	Training of Child Care Personnel for Deaf-Blind Children. Benjamin F. Smith, Director-Elect, Perkins Discussants: Dr. Jan Van Dijk, Netherlands Dr. John R. Eichorn, Director, Department of Special Education, Boston College

THURSDAY MORNING AUGUST 26

9:00-10:15 a.m.	Chairman — Noel Melvin, Assistant Chief Executive, The Royal New South Wales Institution for Deaf and Blind Children, Sydney, N.S.W., Australia Aftercare of Deaf-Blind Children. S. [illegible]. Myers, O.B.E., Research Assistant, University of Birmingham, England. Formerly Headmaster, Condover Hall School for Blind Children with Additional Handicaps, Condover, Shropshire, England
10:30-12:00 noon	Chairman — E. Stewart Armstrong, Ontario, Canada Systematic Studies of Stimulus Sensitivity in Deaf-Blind Pre-School Children. Dr. Bernard Z. Friedlander, Professor of Psychology and Director of Infant/Child Language Research Laboratory, University of Hartford, West Hartford, Connecticut; and Dr. Marcia Knight, Psychologist, Oak Hill School for the Blind, West Hartford, Conn.

THURSDAY AFTERNOON AUGUST 26

1:30- 2:45 p.m.	Chairman — Dr. Verna Hart, Assistant Professor of Special Education, George Peabody College, Nashville, Tennessee Some General Principles of Behaviour Modification Mrs. Barbara A. Pitsch, School Psychologist, Graduate Division of Education, Rivier College, Nashua, New Hampshire Discussant: Margaret Robertson, Graduate Student, George Peabody College, Nashville, Tennessee
3:00- 4:30 p.m.	Chairman — Robert Dantona, Washington, D.C. Report from National Center for Deaf-Blind Youths and Adults. Dr. Peter J. Salmon, Administrative Vice President, Industrial Home for the Blind, Brooklyn, New York Report from Deaf-Blind Committee, World Council for the Welfare of the Blind Dr. Salmon, chairman
4:30- 5:30 p.m.	Chairman — Theodore Pauw, South Africa Deaf-Blind Children in the Emergent Countries Geoffrey E. Salisbury, Zambia

THURSDAY EVENING AUGUST 26

7:30 p.m.	Conference Banquet at *Anthony's Pier 4*

FRIDAY MORNING AUGUST 27

9:00-10:00 a.m.	Chairman — Mr. R. B. F. Lotze, School for the Coloured Deaf, Worcester, Cape Province, Republic of South Africa Sexual Problems of Deaf-Blind Children. Carl J. Davis, Head, Department of Psychology and Guidance, Perkins Subsidiary Paper: The Expression of Sexual Need of the Deaf-Blind Adolescent as Perceived by Classroom Teachers. Miss Mary Davis, Teacher of Deaf-Blind Children, Perkins
10:15-11:00 a.m.	Chairman — S. O. Myers, O.B.E., England The Conference in Retrospect: A Brief Summary Keith Watkins, Australia
11:00-12:00 noon	Chairman — Dr. Waterhouse Final Business Meeting Report of Resolutions Committee Report of Nominations Committee Acceptance of invitations for 1974
12:00 noon	Conference Ended

LIST OF EXHIBITORS AT THE 1971 CONFERENCE

Aurex Corporation, Chicago, Illinois

Princeton Applied Electronics, Princeton, New Jersey

Electronics Futures, Inc., Newton, Massachusetts

Sylvester Service Laboratories, New York

Massachusetts Institute of Technology, Cambridge, Massachusetts

New England Instructional Materials Center, Boston, Massachusetts

Developmental Learning Materials, Boston, Massachusetts

Kenlab, Kensington, Maryland

Bell & Howell, Waltham, Massachusetts

H. G. Electronics, Windsor, Connecticut

KEYNOTE ADDRESS

SERVICES FOR DEAF-BLIND CHILDREN

By Robert M. Dantona
Coordinator, Center and Services for Deaf-Blind Children
Bureau of Education for the Handicapped
United States Office of Education

Three years have passed since the last International Conference on Deaf-Blind Children was held in the Netherlands. During those years, this country has experienced an unprecedented growth in the number of programs established to serve deaf-blind children. The rubella epidemic of 1964-65, as it swept across the nation, left a tragic toll upon an estimated 30,000 infants who were born with one or more of the following: cataracts, hearing defects, heart malformations, mental retardation, and brain damage. In addition, some 20,000 pregnancies were terminated in miscarriage or stillbirth. The economic cost for those children afflicted with congenital rubella syndrome was estimated by the National Center for Disease Control to be more than 919 million dollars. More important, however, than economic cost was the tremendous burden that would be placed on already overcrowded educational facilities when these children became of school age in 1968-69.

Of particular concern by some educators were the 4,000-5,000 deaf-blind children it was estimated would result from the rubella epidemic. The nation's special education residential facilities for deaf-blind children, which then consisted of only 7 such programs, provided educational opportunities for about 125 children in the academic school year 1967-68. In addition, approximately 150 children were enrolled in other programs for the deaf, the blind, or public and private school programs.

Largely as a result of the 1964-65 epidemic and the vision and perseverance of a handful of leaders concerned with the education of deaf-blind children, Congress approved the Act which authorized funds to establish Centers and services for *all* deaf-blind children in the nation. All of us in this room today owe a special debt of gratitude to men like Dr. Waterhouse, Dr. Salmon, Dr. Frampton, and others whose voices it was made Congress aware of the impending crisis of rubella and the impact it would have on thousands of children and their parents in this country. The Act was signed by President Johnson in January of 1968, and from June of 1969 to June of 1970, ten Regional Centers for Deaf-Blind Children were established to serve and plan for the needs of deaf-blind children in all 50 states.

It was the intent of Congress under the Deaf-Blind Act, that services established by the Deaf-Blind Centers should be:

> ". . . designed to develop and bring to bear upon such children beginning as early as feasible in life, those specialized, intensive professional and allied services, methods, and aids that are found to be most effective to enable them to achieve their full potential for communication with and adjustment to the world around them, for useful and meaningful participation in society, and for self-fulfillment."

It became evident very early in the development of the Deaf-Blind program that because of the breadth of services needed by deaf-blind children of all ages, and the scattered geographic distribution of these children, that it would be essential for a number of agencies both public and private from every state concerned to cooperatively join together in order to provide comprehensive services on a regional basis.

With this in mind the Coordinators of the Regional Deaf-Blind Centers set forth to identify and coordinate every available resource in their region which could be immediately utilized, or developed, to provide the following services to all deaf-blind children:

(1) comprehensive diagnostic and evaluative services
(2) programs for the adjustment, orientation, and education of deaf-blind children which integrate all necessary professional and allied services and
(3) effective consultative services for parents, teachers and others who play a direct role in the lives of deaf-blind children to enable them to understand the special problems of such children and to assist in the process of their adjustment, orientation, and education.

The achievements of the 10 Coordinators of the Regional Deaf-Blind Centers have been incredible to say the least and they merit the highest commendations we can bestow upon them. They faced insurmountable obstacles in their desire to make services possible where there were none available in order to give deaf-blind children their just right to an equal educational opportunity. In many states there simply were no services available specifically for deaf-blind children because there were either no such children in that state prior to the rubella epidemic or, if deaf-blind children were known, they were sent out of state to the few available residential deaf-blind schools in the country. This was a luxury states no longer could afford after the rubella epidemic left its toll, for now deaf-blind children were to be found in all 50 states. The existing residential programs would soon be filled to capacity and even with maximum expansion they could enroll perhaps no more than 450 such children by 1972.

The monumental task to make urgently needed services available was accepted by 10 outstanding agencies which have in the past three years received a total of $7.5 million dollars from the Bureau of Education for the Handicapped. Five of these agencies had been involved in educating deaf-blind children for many years and the remaining five are state education agencies and private agencies. As a result, today more than 100 programs in 47 states are receiving direct federal assistance under this Act to provide a variety of services for deaf-blind children and their parents for the coming school year.

The kinds of programs and services funded under the Deaf-Blind Center Act are indicative of the needs identified throughout the country to make comprehensive services available to all deaf-blind children.

For example, in many states top priority has been given in the area of *case-finding*. The Deaf-Blind Centers are funding key staff positions attached to State Departments of Special Education or Commissions for the Blind in order to coordinate statewide services for deaf-blind children. The role of these Field Consultants (Field Counselors, Project Assistants, Parent-Educators) is to identify the population of deaf-blind children in their state; to identify and coordinate the use of existing community resources to provide essential services for these children and their parents; and to work directly with the parents until the child has been placed in an adequate program to meet his unique needs.

Each child located is placed on a Center Registry and arrangements are made to provide *diagnostic and evaluative* services by agencies participating in the Deaf-Blind Center program. Some exciting developments have taken place in this vital area of assessing deaf-blind children to determine their capacity for growth and development as it relates to placement in training and educational programs. A number of evaluation programs are utilizing Piaget's constructs of cognitive development of children. As a result, one Diagnostic Center has developed a *model for assessment* based on sequential developmental tasks which allow for in-depth analysis of the child's intellectual development, object orientation, and social orientation. Data gathered by the Center's Psychologist, Language Pathologist, and a diagnostic clinic teacher led to a sequential developmental task-oriented curriculum which can be ordered (prescribed) to meet the individual child's level of readiness while still operating within the structure of small group programming.

More than 120 deaf-blind children have been evaluated in this program from March, 1969 to July 31, 1971. Most of these children have been placed in educational or training programs throughout the state and three of these children attended for one year an educational demonstration classroom attached to the Diagnostic Center. The research potential for longitudinal study and follow-up of these children is most exciting and may provide valuable data on the validity of their model for assessment and the resultant prescribed instructional programs and the effectiveness of the programs in which each child is enrolled.

Deaf-Blind children, upon completion of diagnostic and evaluative services, are placed in a variety of *classroom settings* such as demonstration classes in diagnostic-educational facilities, residential educational or training institutions, tutorial programs and public school and preschool programs. Many states have attempted to coordinate the resources of a number of agencies in order to provide a continuum of services for the deaf-blind child. The State of Texas is a good example of this. An interagency program for deaf-blind children and their parents, involving 6 agencies in metropolitan Houston, has been developed. The full range of services from diagnosis and evaluation, educational and training programs, and family-home counseling are available under this cooperative endeavor. Similar efforts are being made with training programs targeted for retarded deaf-blind children in an effort to screen out from the more severely retarded group those children who could benefit from a combined training/educational program.

Related to this effort is the recent development of the *Respite Care Center* concept originally developed for the retarded child and now being used by two Deaf-Blind Centers with deaf-blind children. The purpose of the Respite Center is to provide needed educational/training experiences for the child while also providing temporary relief during the weekdays for the parents of the deaf-blind child thus freeing them to lead more normal lives. The Respite Care program will provide an educational component for the deaf-blind child emphasizing activities of daily living, skill building, communication skills and social skills so important for the child to interact effectively with other age-mates. Also emphasized will be training of the parents to help them in understanding and working with their child. The Respite Care Center provides a short term experience operating five days per week, excluding the weekends, to ensure that the program will not develop into a residential type of treatment program. The potential of such a program acting as a stop-gap measure to prevent the institutionalization of a child is great and does much to keep the family unit together. The unmet needs of parents of handicapped children can no longer be ignored and supportive counseling for them and training for their child in the home, or in a Respite Center is crucial if survival of the family unit is to be assured.

In an effort to meet the needs of parents, itinerant *parent-home counseling and teaching* programs have been set up in many states. Such programs may provide support for ten weeks in the summer in order to reinforce student progress made during the school year, and also to help parents develop an understanding and acceptance of their child's unique problems. And, for the preschool child for whom no classroom may be available, home instruction programs are being established with itinerant teachers visiting the home on a regular basis during the school year to work with the child and the parents.

The development of itinerant home-teaching programs which are active during the school year and also carry over through the summer months is indicative of the *trend to extend the educational opportunity for* severely handicapped children to eleven months in the year. The need for such an extended program is particularly crucial in the child's very early years of development. We all know how devastating the summer months can be for these children, especially those children in residential programs who return home in the summer to an environment not conducive to learning and unable even to maintain the child's level of growth and development obtained in the classroom. This is an area and a need that we as educators must look at more seriously and do all that is possible to provide essential supportive home services and counseling to assist parents in a meaningful way so that the summer months may be used to enhance a child's potential, rather than reduce it.

Other critical areas in which increased activities have taken place are *inservice training programs* for professional and paraprofessional persons associated in programs serving the deaf-blind child, training workshops for the parents of these children, *tutorial/companion programs* designed to provide individualized programming for the deaf-blind child, *summer* camp programs both day and residential, and *teacher training and preparation* which will be discussed during the Conference by Dr. Peter Salmon, will be the program of the National Center for Deaf-Blind Youths and Adults which, along with the Regional Centers for Deaf-Blind Children, will complete the continuum of urgently needed services for deaf-blind persons from birth to maturity.

The past three years of activity by the Deaf-Blind Centers which involve the efforts of state, local and federal agencies, have accomplished the following on behalf of the more than 3,600 deaf-blind children identified to date by the Centers:

—more than 600 deaf-blind children have been provided

—diagnostic and evaluation services

—at least 129 day school programs have been identified and are providing educational opportunities for more than 600 deaf-blind children (17%); and

—at least 415 deaf-blind children (11%) are enrolled in *18* residential educational programs (a new trend is in the making with day schools providing more educational opportunities for deaf-blind children than residential schools)

Nearly one-third of the deaf-blind children identified are now receiving educational opportunities through these programs. However, before we begin to rest on our laurels let me inform you that nearly *800* children (22%) are located in *state institutions* for the retarded. This has caused great concern to all of us since nearly half this number, *some 3[illegible]5 children*, have been identified *in* state institutions of only *one state*. What is frightening is that we have not yet begun to survey in a systematic way all such institutions in all 50 states. It is possible that there may be more deaf-blind children in these institutions than we may locate outside. What is called for, then, is a tremendous cooperative effort on the part of those institutions for the retarded and the Regional Deaf-Blind Centers to provide educational and/or training opportunities for these children, to train and upgrade existing staff and to provide necessary additional staff in the form of teachers, aides, houseparents, and others to enhance the daily living and learning experiences of these children. In addition, an intensive re-evaluation of each child may be in order. Indeed, many deaf-blind children referred to institutions for the retarded may be properly placed but, it has been my experience, and I am certain also yours, that many children are in these institutions because no additional programs were available at the time. Such a situation is intolerable and must be changed soon if these children are to ever have an opportunity to become whole human beings.

Of equal concern to us are the more than *540 children* (15%) who are *at home* and *not enrolled in any kind of program* and the *1,176 children* (32%) for whom *no information* is available to determine their status. Time is working against these children and their future becomes more bleak with each passing day in which they cannot benefit from even minimal assistance in the form of home visitations by parent-educators. The catastrophic effect of such a child upon a family and the feelings of despair and hopelessness expressed by parents and siblings is not one which we can turn our backs on. Immediate relief is essential and is a responsibility which local community resources must cooperatively join together to resolve. The responsibility to assure and guarantee the birthright of deaf-blind children—*all* children—rests with each of us. There can be no greater test for the measure of a man, society, or a nation, than the way in which we individually and collectively care for our children. We are indeed in the midst of a silent revolution in which our *actions* speak louder than our words, in which our *deeds* reflect those values which truly govern our lives. A new *humanism* is being reflected in our value systems and a new commitment to better the lives of all human beings is being demonstrated daily by people's actions in this country and abroad.

The needs of deaf-blind children represent the needs of *all* children, in fact for all mankind. There can be no other purpose for your meeting at this Conference than your desire to do all that is humanly possible to provide the best educational, training opportunities to these, the least of our children.

Surely, we want no less for deaf-blind children than we want for all children. Our society has the capacity to *care* and the resources to *act*, and act we must. I believe the purpose of this Conference is the same as the purpose set forth in the recent White House Conference on Children which is described so beautifully in its *Preamble* and which states:

—This should be a Conference about love . . . about our need to love those to whom we have given birth . . . and those who are most helpless and in need . . . and those who give us a reason for being . . . and those who are most precious for themselves—for what they are and what they can become. Our children.

—Let us ask what we want for our children. Then let us ask *not less* for *all* children.

—We want for our children a home of love and understanding and encouragement.

—We want for our children a full opportunity for learning in an environment in which they can reach and grow and take pride in themselves.

—We want for our children the right to be healthy, to be free of sickness. But if sickness comes, to have the best care humanly possible.

—We want for our children the right to have the respect of others.

—We want them to have respect and dignity as a right because they are, not because of who their parents are.

—We must recognize that there is some child in special need. And he especially must be our child.

—There is a need to change our patterns of living so that once again we will bring adults back into the lives of children and children back into the lives of adults.

—The changes must come at all levels of society—in business, industry, mass media, schools, government, communities, neighborhoods, and, above all, in ourselves. The changes must come now.

And I am certain they will, because of people like you.

PROGRAMS FOR NON-VERBAL CHILDREN

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The term "non-verbal" can, of course, be applied to any child who is unable to use a symbolic method of communication. However, for the purpose of this paper, it will be used as a means of labelling or focussing your attention upon a specific group of deaf-blind children—a group with special difficulties and needs, and who require a very different approach and teaching programme from other deaf-blind children.

The non-verbal child is so called not only because he lacks a symbolic form of communication, but also because, unlike the "pre-verbal" child, his behaviour shows no evidence of pre-symbolic activity. That is, he does not point to people or objects, use gesture, mime or projective vocalisation—the very roots of later symbolic activity. If he does possess a means of communication, it is usually based on signalling and not signing—on the anticipation of the event following on from a gesture etc. rather than on the understanding of the meaning of the gesture.

The difference between pre-verbal and non-verbal behaviour can clearly be seen on a visit to two separate groups of these children.

The pre-verbal children will take a keen interest in us on our arrival. They will want to know who we are and whether we have come by car. They will point to us and put over their questions to their teachers using gesture or mime accompanying these with expressive sounds directed at us.

The non-verbal children, on the other hand, will not concern themselves so much with who we are, but what we have that is of use, or of interest to them—what we have in our pockets, or the ladies in their handbags! Those of them with useful sight may note which of us wear spectacles, and may try to remove them if given too much freedom. They will use no gesture, though they may try to get us to indulge in some vigorous form of activity with them. They will vocalise, but their sounds will simply be an accompaniment for their own excited movements. If you should take one of these children on to your lap and share some activity together, the child may respond to you by smiling, or laughing and even try to get you to repeat the activity. Give him cubes or bricks to play with and you will see that, though he does not play imaginatively, he may play constructively for short periods.

No doubt many of you have already come into contact with non-verbal children—in their homes, in units, or at assessment conferences, but unless you have visited a hospital, or special care unit you may not be familiar with the full range of their behaviour. The children I have just described are what one might call the trainable non-verbal children—the responsive children—but there is another group, or level of non-verbal children, who function in a very different way.

These children treat others completely as comfortable objects, lying or draping themselves over them, or getting them in a position which suits them, whilst they continue some favourite mannerism. They tend to take everything you do with them as a serious matter, perhaps only responding to strong tickling. Some children may reject any approach you make to them, refusing to have their way of life changed in any way. The non-verbal children at this level usually reject objects or use them in a stereotyped pattern of activity, such as banging them against some part of their body as a crude means of obtaining sensation. They may be so severely retarded in locomotor development that their lower limbs become useless, or permanently bent at the knees when they do eventually learn to walk. Any food they eat may have to be prepared in a special way; and their ability to care for themselves in everyday situations may be completely lacking. Usually their main occupation throughout the day will be sensation seeking: light-gazing, rocking, vocalisation etc. or the carrying out of ritualistic activities.

I have described the children at these two levels at some length because it is my belief that, unless a suitable teaching programme is provided for a non-verbal child from the earliest years, he will become very much like one of these children—the children who require custodial care in hospitals in their later years. For it is my experience that these less responsive and less competent children are more usually found amongst non-verbal children of approximately six years and over, than amongst children of a younger age.

It is essential, therefore, that a programme of organised activity be implemented by parents with guidance from a teacher, at the earliest opportunity. One useful way of arranging this is for a school, or unit, to employ an experienced teacher who can make frequent visits to parents known to have deaf-blind children, giving them advice on the implementation of a simple programme, choice of aids, toys, or large apparatus.

Where children are already placed in units, I think it is important that they are looked upon as a group and worked in this way. Children on the fringe of any programme not planned specifically for them are always at a disadvantage. Dramatic all-round improvements can be made if the children are given a programme which is tailored to their needs, and the staff allowed to judge their progress in relation to this one group, rather than in relation to more capable children in the school.

Probably the most important part of a teaching programme for any child is the development of his social awareness and behaviour and his ability to communicate and receive communication. As some non-verbal children will not even tolerate being handled by an adult, the development of social behaviour begins right here.

Start by getting him used to being rolled and pushed about gently but firmly. Use a nice thick mat for him to roll on, or carry out these activities in the bath or a small pool. Coax such a child to stay on your lap by any means you can find or by keeping fairly still to begin with and then, slowly increasing your activity. If he should squirm don't put him down too soon but hold him a little longer so that he gets used to the activity.

Communication is primarily concerned with receiving and expressing. With the young non-verbal child we cannot develop a complex system of communication, but we can lay down the foundations for future work by employing activities which feature both the receptive and expressive aspects of behaviour.

Develop his ability to respond to you by seating him on your lap, holding both his hands if possible and using initially such whole body movements as rocking, swaying from side to side, bouncing etc. Whole body movements are better for the unresponsive child because they involve so much more of *him*. At the same time you need to watch his face carefully to see the responses he makes. Does he smile or scowl, laugh or vocalise? In particular does he try to carry on the movement when you slow down or stop? If a child can reproduce the movement he may be able to imitate the movements used for signalling.

Sound or vibration toys and instruments may all be brought into these sessions, but here again you must watch the child's face to see whether you need to increase, or decrease the level of stimulation.

Encourage the child's expressive behaviour by responding to the movements, or sounds he produces. When he makes a particular movement reward his activity by bouncing him a little on your lap, or blowing on him. In this way you not only reinforce these movements, but also have the makings of a simple game which you can enjoy together.

Extend this work by making use of simple signalling activities. Teach him to pat your hand in order to be bounced. Then, if you teach him to give another signal for a different kind of movement, see if he can make a choice between the two signals. Alternatively, give him a signal and get him to perform some simple activity in response to it. I have tried blowing on a child lightly as a signal, and then lowering him down between my legs. After repeating this a few times, I pause to see whether he will wait for me to blow on him.

Activities introducing a series of simple actions culminating in a climax, which the child can come to anticipate, should also be used—though it may be necessary for you to make up your own.

The major plight of the non-verbal child is his isolation. Directly linked with this is the helplessness of the parents and their feeling of inadequacy. They are unable to communicate with their child, nor he with them. The result is that each tends to treat the other in the same way. The child leads his parents by the hand to the object he requires and they either do the same, or carry him bodily from place to place. This treatment of each other as objects, which have to be managed, or manipulated, rather than beings capable of responding to one another, only tends to increase the isolation of both child and parents.

Any programme for non-verbal children should provide some means of overcoming this situation.

I have found a simple manual method to be most useful and most successful for this purpose. One holds the child's hands, or hand, and one indicates what one requires of him—whether it be "stand up", "sit down", "jump", "come here", by moving his hands. Now instead of just manipulating the child we are demanding a response from him; we are treating him as a living thing and not as an inanimate object.

At the same time if a child has useful hearing one can give a simple vocalised command if possible accenting the rhythm or pattern of the words used, e.g. up! d-o-w-n! If the child has better sight than hearing one can give a visual signal with one hand and a manual signal with the other hand as before, e.g. "come" and "stand up".

Whatever system you use should be practised in play, or everyday situations until it is performed automatically. Having practised these hand-to-hand movements, I work them out on movement apparatus of all kinds, climbing, jumping, rolling and turning to name but a few of the activities performed.

Besides teaching a child to respond to our demands—and how necessary this is for some children—any programme should also give the child opportunities to communicate his needs. Communication is a two-way process—a "taking in" and a "giving out". With a non-verbal child it is all too easy to place so much emphasis on the child "taking in" that we neglect the process of "giving out".

This aspect of communication can be commenced in a very simple way by encouraging all outward going and socially acceptable behaviour: holding out the hand to receive a toy and later returning it; holding out an empty cup to have it filled; rolling a ball to the teacher and receiving it as it returns; holding out a hand for a biscuit or sweet.

We may then extend this activity to actually signalling for something, once again using a manual method. The signals I use with non-verbal children are based mainly on clapping or patting because I find these easier for the children to perform, and are more definite and of short duration.

Holding the child's hands I first make the signal for him and then follow this up with a particular activity. For example I might clap his hands together and then lift him up. I repeat this a number of times and then give him the opportunity to make the signal himself. If he fails to make the signal, I repeat the procedure. If on the other hand he should make only the slightest attempt to give the signal, I reward him with the activity. When a child can give one signal I teach him another signal which has a different activity as its reward. If after this a child can choose between two signals I regard this as a big step forward.

Signals can also be taught for food and drink. I find it easier to teach a signal for drink because non-verbal children are less fussy about drinks than about food. I simply tap his mouth with his fingers and give him a sip of lemonade or orange squash. I repeat this several times and then give him the opportunity to do it himself. If he does it, he gets the reward. If he doesn't do it, I put him through the motions of the activity and give him the drink in any case.

To increase the number of signals a child can make you must increase his experience and range of activity. This means, of course, putting him through the motions of performing more everyday routines and developing his interests in other objects and activities. These then have to be linked with new signals. To achieve this I think it is useful to have definite places tor everyday implements, utensils etc. Should you want him to wipe a table you make the signal for the activity, show him where the cloth is kept, and put him through the motions of the activity. The fact that the cloth is always in the same place will, I feel, enable the child to learn to respond to the signal more quickly.

If a non-verbal child is already able to perform certain everyday routines capably, he is ready to learn to use and respond to signals for the activities or objects involved, so commence this work as soon as you can.

Besides learning to be a social being the child must be helped to find some "solid ground" on which the development of his individuality and his mastery of a variety of skills can be based. As non-verbal children are unable to play imaginatively they actually need to be shown how to use objects—how to hold, combine, join or build with them. We, for our part, as teachers, must find something the child can do, no matter how simple on which we can build. We must find what one gifted teacher described to me as a "growing point".

Once a child has mastered early manipulative skills, provide him with simple apparatus that requires very little discrimination. Use objects of the same size, shape, texture, or colour. I suggest for this work "units" ot various kinds which can be combined with one another or with some other object; for example cubes or bricks for stacking, pegs to be placed in a board; rings, or beads to be threaded on laces, or on sticks; cups which can be stacked. When a child has mastered a skill, make the activity a little harder by varying the shape, size, texture or colour of the pieces.

Besides teaching children how to use table top apparatus, show them what can be done with large objects and play with them on the floor using: large bricks, balls, hoops, bean bags, boxes and wagons. Some children respond much better to activities that involve gross, rather than fine movements.

I think it is also helpful if one can provide a playroom for these children which encourages them to explore, experiment and gain experience of the spatial qualities of objects, by themselves.

Besides equipping the room with all the usual nursery apparatus, one can also attach objects of all kinds to the walls. I have seen such a playroom equipped in this way with sound and vibration toys, a multi-textured panel, another with objects for pushing, turning and swivelling etc., a mirror, bead frames and numerous everyday objects.

To encourage more purposeful activity at tables one can clamp to them wooden frames on which are wires threaded with such objects as beads, cotton reels and textured objects. The advantage with such apparatus is that the objects follow a definite path on the wire; they cannot be lifted easily to the mouth and the individual pieces on the wires cannot be lost.

Any programme for non-verbal children should also include opportunities for the use of such expressive materials as sand, water, play-doh, finger paint, dried peas, rice, tissue paper and tinfoil.

The children's responses to these materials can, however, vary considerably. Some will just twiddle the materials, others put them in their mouths and only a very few take pleasure in producing anything constructive.

Here again I feel the majority of these children need to be shown how to use the materials and how to bring some order to the shapelessness these materials present. For this purpose I suggest you try aids which structure the use of the different materials. Moulds of different shapes and dishes and bowls of varying size can be used for filling with sand, rice, or play-doh, so that the material actually takes on a definite form. Templates or stencils may also achieve the same result with paints, crayons or chalks. A variety of objects, which leave a definite form when pressed into clay, or plasticine can also be tried. Also pads of different shape, mounted on blocks of wood, can be made and used for instant pattern making. Similarly, tools of different kinds which shape materials in particular ways can be helpful, including pastry cutters, modelling tools, sand combs and combs for producing different patterns on a painted surface.

Water play is particularly enjoyed by non-verbal children, but is so much better for them if they can actually get into the water to splash about and, in particular, to feel it around them. Containers can be brought into this activity and the children given experience of pouring from one container to another. In the water children who dislike using their hands can be stimulated into feeling and exploring with them if the water is poured or trickled over them gently. Try this and you will see the children reach up and open their hands in response to the water.

Children should really be taught to wash or dress themselves in the everyday situation. If the non-verbal child is at home, or in a unit with a pleasant relaxed atmosphere, which allows teaching to flow into the residential life and vice-versa, it can all be taught naturally. However, this cannot always be; in a hospital unit with a large number of children this is particularly difficult to achieve. Thus occasionally these skills have to be practised as part of a teaching programme. However, a teacher should not simply test children to see if they can put on shoes and socks etc., but provide activities which give the necessary experience for these tasks.

With very young children you can help them to rub talcum powder or cold cream over their toes, legs, arms, hands and other parts to give them a better understanding of their own bodies. Not only is the sense of touch stimulated here but also the sense of smell.

Small rings or hoops can be used to give the child the experience of taking something off or putting it on again.

Perhaps the best activity there is for teaching children to dress themselves is a session with a good variety of dressing up clothes.

Water play can, of course, precede the teaching of washing skills and thus sponges for squeezing and soaking can be provided, and a little soap used with care. A good thick towel should also be nearby for frequent drying of hands and faces.

I have talked little about a definite movement programme mainly because it is so closely linked with communication activities. With the stimulation it provides and the continual interaction between child and adult which it entails, movement for the non-verbal child *is* frequently communication.

However, I cannot stress enough how important it is that one encourages these children to sit up and take notice of the world instead of spending long periods on the floor. It can begin with play on mother's lap—with mother encouraging the child to hold a sitting position for longer and longer periods. It can also be encouraged by the use of a small, safe swing or by short periods in a chair with table and toys provided.

When a child is near to walking, a rail along a wall hung with interesting things to finger, hold or look at can encourage longer periods on the legs.

If for no other reason than that these children are more easily managed when able to walk, do see that they get exercise and help so that they can continue to make progress. This particularly applies to children in institutions or hospitals for the mentally retarded.

I have tried to cover the basic areas of activity in a simple teaching programme, but, of course, there are numerous other activities which can be built into it depending on the needs of a child, or the children in a unit; depending also on the environment, the organisation of the staff, their personalities and interests.

One might also include in a programme a weekly visit to a shop that has a good food smell about it; a regular ride in a mini-bus; a visit to a swimming pool; walks to places which will be of interest to the children—these are just a few more activities that come to mind.

Remember, however, that a programme by itself is not enough—it is the whole day and the whole environment which shapes the child. You must, therefore, have the co-operation of the child's parents, if he comes to you daily, or the other staff in the unit if he is resident, so that there can be continuity of work in these other situations.

Finally, do make use of real-life situations—mealtimes, bath time, getting up and going to bed, mid-morning snacks, etc. Every situation is a teaching situation and thus the whole environment of the non-verbal child your classroom.

A PROGRAM FOR PRE-VERBAL CHILDREN

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Introduction:

Since the outbreak of rubella epidemics in 1964-65 there have been many programs initiated and expanded across the country on federal, state, local and private levels to accommodate this sudden increase in the deaf-blind population. Twenty to thirty thousand children were reported to have been born with multiple handicaps. The National Communicable Diseases Center, Atlanta, Georgia in 1969 reported to have identified about 4,000 children who were both visually and auditorily impaired. The newly established Area Centers for Services to Deaf-Blind Children (Title VI —C, P.L. 91-230), in 1970, have reported over 3,000 deaf-blind children.

Since the establishment of the Area Centers across the country, workshops, seminars, conferences, special study institutes were held to discuss the problems and needs of this new breed of post-rubella syndrome children. At the national workshop, probably first of its kind, on the management and evaluation of deaf-blind children held at the New York Institute for the Education of the Blind, sponsored by New York Institute and the Rubella Birth Defect Evaluation Project, New York University Medical Center in cooperation with local agencies from metropolitan New York, we saw a tremendous cooperative effort of educators, teachers, pediatricians, ophthalmologists, psychologists, psychiatrists, audiologists, neurologists, and many others involved in servicing deaf-blind children, to share and exchange ideas and experiences in order to service these children properly.

All these conferences and workshops along with various programs across the country have helped us a great deal to understand some of the problems and needs of these children. I wanted to include this brief introduction with a view to bringing forth the point that we do know some of the basic problems and needs of these children.

I hope the following description will give you some idea as to what we at the New York Institute for the Education of the Blind and at other programs in our center region have been able to do in the way of programming for pre-verbal children. In this paper, I will attempt to present only the basic elements of a program.

Who Are These Pre-verbal Children?

Are we talking about deaf-blind children who are not verbal but will be verbal if given time and training? To some degree, yes. But we have no available scientific tools by which we can accurately diagnose as to who will be verbal and who will not be. In case of a normally hearing child we can say that by the age of four the child will have a vocabulary of two to four thousand words and that he will communicate orally and meaningfully. But the children in question are not "normal" auditorily and visually and they may have additional handicaps. Then this child at the age of four will not have the "capital" (hearing) to "invest" (use) and draw "interest" upon (receive information aurally). In other words a pre-verbal child may be one who has auditory and visual impairments with concomitant disabilities such as mental retardation, congenital heart condition, brain damage, bad teeth, poor health and so on, which will prevent him from progressing through the normal sequential stages of physical, mental, social and emotional development. This child may not display any symbolic behavior nor protosymbolic behavior indicating inner language. Symbolic behavior would be the use of symbols to communicate and protosymbolic behavior will be communication through gestures (Kaplan & Werner). But through stimulation and training these children, or some of these children would learn to communicate. Some will use speech, some speech and finger-spelling, some only finger-spelling, and some only gestures. Further, these children may have developmental lag in the areas of self-care, coordination, attention span, cooperation, mobility and orientation, etc.

Program Description:

With the above description of pre-verbal children we can easily say that these children need a program which will build a foundation for further development and refinements in the areas of self-help daily-living skills, mobility and orientation skills, communication skills and speech and language skills. When we say, program for pre-verbal children, then this program should emphasize the verbal facility which should be the outcome of such a program.

Actually, what I am trying to describe is a readiness program for pre-school children with special emphasis in the development of speech as a means of communication.

Due to the nature and varying degrees of impairments, a program for pre-verbal children should be varied and flexible to meet their individual needs. Unlike "normal" children, these multi-handicapped children may not progress through the various sequential stages of physical, mental, emotional and social development. We may find in some children these developmental stages are partially completed while in others these may be totally omitted. Consequently, we may have a totally heterogeneous group of pre-verbal children, each one at different stages of development. However, we would like to assume that all these pre-verbal children have displayed some degree of development in inner, receptive and expressive language. So in planning a program for pre-verbal children we would like to keep in mind the following important components with special emphasis in the development of speech. Basically the program will include the following areas of development:

a. physical readiness
b. self-help and daily-living skills
c. mobility and orientation
d. perceptual training
e. social skills
f. communication skills, and
g. speech and language

Looking at the list of components above one may question, why the others. We must recognize that in order to "talk" about something, one must have some knowledge about himself and his surroundings. One must be able to realize his own abilities to do things for himself and for others, react to others and relate with others. Further, through meaningful experiences and through perceptual training one should be able to gather information toward the development of concepts about self and his surroundings. We may use the word "talk" in basically three different ways. One may use speech to "talk", or one may use signs to "talk", or one may use gesture to "talk". We must encourage each one of the above three in order that the child learns to communicate with others. Unless a child has a desire to communicate it will be utterly impossible to expect him to become verbal.

The components mentioned above will provide a child with various meaningful experiences not only to help build concepts about himself and his surroundings but also help pave his path toward independence.

I would like to go over these components very briefly:

Physical Readiness: What is physical readiness? If we look carefully we will find that it is the basic preparation toward the utilization of one's body and its parts along with the help of sensory modalities to perform a certain task. It is the integration of sensory modalities combined with the physical abilities to gather information to build meaningful concepts toward independent functioning. We do know that many of these children have grown chronologically without going through the sequential normal developmental stages—physically, mentally, socially and emotionally. If we are to expect them to "perform" we must meet their needs physically, socially, emotionally and mentally (intellectually). In the area of physical needs we may provide activities such as creeping, crawling, walking, jumping, running, pushing, pulling, walking stairs, twisting, turning, squeezing, throwing, picking, swimming, carrying an object, and so on. Through these activities the children will be helped to recognize their body and its parts and what they can do. Here we are trying to help the child to build a "self-image". A concept of this self-image will not only give them an awareness of what their body and its parts can do but also help them gain information to develop concepts of themselves and their surroundings. Physical readiness should then be considered an important development in the total child. These physical activities (motor activities) will be vitally important in the development of skills in the areas of self-care and mobility and orientation.

When we are talking about physical readiness we are also talking about their perceptual training, we are also talking about the development of skills in mobility and orientation, and we are also talking about the skills in the areas of self-care.

As we plan these activities, we must keep in mind that we would be using some form of communication, preferably verbal along with gestures and signs depending on the child's general functioning level. If the child is totally blind and deaf we may use the "tadoma method" of communication along with gestures and finger-spelling.

Self-care: A deaf-blind child's first step toward independence may be initiated in the areas of self-care. For a totally deaf-blind child it may be a little harder and longer to perform a certain task in the areas of self-care due to the fact that he lacks the vision and hearing to imitate others. He may need little more time, little more practice and little more help to learn these tasks as opposed to a child who is endowed with some functional vision and/or hearing. Also we must recognize that children are toilet trained at different age levels depending on their physical and emotional readiness. Further, bladder control is little harder than bowel control. So we must make sure that deaf-blind children get sufficient time, practice and encouragement to develop these skills (in dressing, eating, toileting, washing, etc.).

Here also we may use a form of communication which is understandable to these children. The form of communication could be either gestures, signs or manual alphabet, but it must be accompanied by speech. For example, we may use the sign "T" for toilet, or we may use gestures for washing, or for "pull up your pants", or we may finger-spell these words or phrases but in each case it should be accompanied by speech.

Mobility and Orientation: By mobility we mean one's ability to move and by orientation we mean one's awareness of the surroundings and his relationships to them. Readiness for mobility, or the ability to move, will primarily depend on one's physical and sensory skills. Further, the child must want to move or he must have a reason to move. This wanting to move will be greatly reduced if the child's vision is reduced and for some children it may be directed and limited only toward light. For a totally deaf and blind child his movement may not be spontaneous because of his previous experiences, e.g. bumps and falls. He may not initiate any movement probably because he is not sure of his movements or probably because he does not recognize his surroundings. In order to help him develop realistic concepts of his surroundings through undistorted sensory impressions activities must be planned to guide and direct his experiences. This will help him to develop the ability to distinguish one part of his surroundings from another by size, shape, texture, color, temperature, smell or sound.

Here also, form of communication used with the child may just be gestures, signs or manual alphabet but it should always be accompanied by speech. As the child begins to develop meaningful concepts to distinguish bathroom, classroom, speech and auditory training room, bed-room, play-ground, swimming pool and so on from one another the form of communication used will depend largely on the child's ability to understand. However, an oral atmosphere must be maintained all the time to constantly remind the child of the importance of verbal communication.

Perceptual Senses: When we talk about the training of perceptual senses we mean the training of auditory, visual, tactile, olfactory and taste sense modalities. The far senses, i.e., hearing and vision are of greater importance in terms of receiving information and the major part of our concept formation comes through these two channels. However, we know that the understanding of a concept will be greatly increased if sensory impressions received through one sense modality is refined and reinforced by information received by another. In other words, impressions or information received by one sense modality will be added, subtracted, refined and reinforced by information received through other sense modalities.

In order that the children can receive information to build concepts (about themselves and about the surroundings) care must be taken to plan meaningful activities to stimulate and train their sense modalities. These activities and experiences will need to be repeated many times in a variety of situations before a concept can be developed.

Evaluation of useful functional perceptual abilities in the areas of hearing and vision especially must be made with full knowledge of the latest available medical data combined with the observations by classroom and dormitory staff. Within the last few years, we have seen several children at New York Institute, who were diagnosed and evaluated as having no functional hearing and vision and who we found after a period of stimulation and training to have enough vision and hearing respectively to be able to learn to read large print and hear and understand spoken words and phrases with the aid of amplification. So it is very important to have an ongoing evaluation of perceptual abilities while in a program of stimulation and training in order that necessary changes may be made in a program to meet the child's individual needs appropriately. Uses of hearing aids and low-vision aids would then correspond to the nature and degree of loss auditorily and visually based on periodic evaluations.

In training children, then, to develop perceptual abilities activities should be planned to provide meaningful experiences according to each child's needs. For example, we may find certain children who may have progressed to the phase to use a stimulus as a clue to determine their location in relation to their surroundings, while another child may be at a phase where he can only distinguish between the absence and presence of a stimulus.

Following points may be helpful in planning activities to stimulate and train sensory perceptions:

a. *Vision:* Our main goal here is to help the child develop his ability to use his remaining vision meaningfully.

Activities:

1. Expose the child to a variety of meaningful visual experiences to receive information from which he can begin to build concepts about his surroundings. Tactual sense should be utilized whenever possible.
2. Through gross imitation—of body movements, matching parts of the body, imitating shapes and movements of speech organs, e.g. mouth wide open, pucker, tongue out, behind the upper teeth and so on.
3. Through matching—by forms, sizes, colors, using real objects and pictures. Variations, such as same color and different forms, or same form and different sizes, etc. can be introduced as the child begins to build up enough information to make appropriate comparisons towards the development of concepts. Each new concept will be built upon the old ones, as much care must be taken not to overwhelm the child with too many unrelated concepts. Depending on the interest of the child activities should be initiated. For example, if the child is interested in colors rather than forms, introduce the activity with color first.

The form of communication throughout these activities should be verbal and may be accompanied by gestures, or signs or manual alphabet. Tadoma techniques should be applied whenever it is possible and acceptable by the child.

b. *Touch:* The main goal here will be to help the child utilize the information received through tactual experiences to build concepts about the surroundings.

Activities:

1. Expose the child to a wide variety of situations to help

him gain information about his world. Some of the experiences may be, hot and cold, large and small, rough and smooth, hard and soft, straight and curve and vibrations.

2. Activities mentioned under vision may be used to provide tactual experiences, with little or no modifications. For example, through gross imitation of body movements, matching, and so on.
3. Exposures to vibrations through a variety of situations using sources such as piano, organ, drum, vibrating floor, vibrating chair are a must to develop tactual abilities and to prepare the child for finer discrimination in the use of Tadoma Technique for the development of speech and language at a later stage.

c. *Olfactory and taste:* Some of the activities to develop perceptions in these two areas may be the following: cooking class —baking cup-cakes, brownies, etc., washing hands with soap, use of perfume, finger painting, peeling and eating bananas and oranges, etc.

d. *Auditory sense:* Hearing is by far the most important sense modality through which we begin to develop our language and speech. In a program for pre-verbal children then, basic emphasis and care must be taken to plan activities by which children will be helped to use their residual hearing to the fullest degree. Further, we must recognize that potential usefulness of auditory sense will greatly depend upon the degree and nature of hearing efficiency as well as the emotional and intellectual status of the child. It will be highly necessary to make an initial functional evaluation from the latest available medical data and observations of classroom and dormitory personnel.

Awareness, acceptance, discrimination and utilization of sound stimuli may be developed by exposing the child to various auditory experiences. These experiences are similar to ones that would be included in a typical auditory training program. The elements of such a program may be:

a. experiences with gross sounds, e.g. noisemaking toys, rhythm band equipment—bells, drums, cymbals, triangles, etc.;
b. experiences with environmental sounds, such as recess bell, car horn, cough, laugh, sneeze, knock at the door, telephone ring, and so on;

c. nursery rhymes and other music—using records, tapes, piano, guitar, etc.;
d. experiences with animal sounds;
e. experiences with speech sounds.

In each of these activities use of speech, with or without vibration should be attempted. Activities should be presented through singing, and dramatization and by getting the child motorically involved if he is cooperative and willing. Activities should not be forced upon a child if he is not happy about it and not cooperative.

Encourage the child to imitate speech sounds initially in play and/or informal situations until he is ready for formal speech lessons. Specific time (short periods) should be scheduled in each of the areas.

In the preceding pages I have been talking about a readiness program for pre-verbal children. The areas mentioned above, I believe, would be helpful in getting the child ready for formal lessons in the development of language and speech. Unlike a normally hearing child, we cannot expect and wait for a deaf-blind child to start talking. We must offer him all the help through various experiences to gain enough sensory information to build a foundation for the development of language and speech. The child must be helped to realize that people talk to communicate. Help and encourage the child to experience it, indoors and outdoors. He must experience the oral communication over and over again through the use of his remaining hearing, and/or vision and through vibration. He must be given every chance to use any form of non-verbal communication whether it be gestures or fingerspelling. Verbal communication may not be achieved unless the child is allowed, first, to use whatever form of communication he prefers or finds comfortable. As the child starts to communicate he should be encouraged and helped to gradually imitate speech depending on his "readiness." As soon as the child's responses become partially "oral" and his communication improves speech lessons should be introduced in short daily periods. This does not preclude the use of speech by other personnel working with children before and after school hours. Following is a brief summary of points discussed above:

a. Maintain an oral atmosphere in conjunction with the use of non-verbal communication.

b. Encourage communication whether it be non-verbal or verbal or in combination, indoors or outdoors.

c. Provide opportunities for him to experience maximum of oral behavior with his teachers, children and other personnel (indoors and outdoors) anyway involved with him.

d. Activities to experience auditory stimulation and training should be provided both on an individual and group basis.

e. Use of gestures and finger spelling should be accompanied by speech, e.g. words and phrases leading to simple conversational language.

f. Non-verbal communication should be gradually replaced by verbal communication as the child begins to develop confidence and show interest in it.

g. Depending on the child's remaining residual sensory perception and his perceptual abilities—the use of touch, vision and hearing should be tailored; for example, initial exposure for imitation of speech may be through the:

  a) vibration, vision, and hearing
  b) vision and vibration (touch)
  c) hearing and vibration (touch)

In conclusion, I would like to say that the areas discussed in the paper would provide some basis for more thinking and planning to develop programs, but the elements mentioned above by no means make up for a total program for pre-verbal children.

PROGRAM FOR VERBAL DEAF-BLIND CHILDREN

By Rose M. Vivian

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Before delving into an elaboration of programs for deaf-blind children, it would seem important, for purposes of clarification, to define the words *verbal* and *deaf-blind*.

The term, *deaf-blind*, has many ramifications. It has been previously defined and explained by many as well as by myself, but it needs to be repeated since there are many of you from other nations who may not be familiar with the current understanding of deaf-blindness in this nation. Our definition of a deaf-blind child allows for an extraordinarily broad category, great flexibility, and individualization. We consider a deaf-blind child to mean "a child who has both auditory and visual impairments, the combination of which causes such severe communication and other developmental and educational problems that he cannot properly be accommodated in special educational programs either for the hearing handicapped child or the visually handicapped child." This definition allows for a variety of program environments to suit the needs of the child and his regional community. It stresses society's responsibility to the child. Also by omitting specific qualifications it allows for additional handicaps, changes in educational placements when indicated by periodic assessments, and for establishing new educational programs but also utilizing established resources whenever possible.

It is also important to note that the term, *education*, has now developed into a highly complicated and more refined use. Education currently goes beyond academic achievement and includes training as low as the motor level of functioning and expands to the discovery and understanding of the many intricacies of living in our society.

The term, *verbal*, as it will be used in this paper also needs defining. Myklebust explains it thus: "verbalization indicates the presence, in a child, of his ability to behave symbolically; this is language. This capacity for language makes it possible for him to refer to places, people, things and feelings, whether or not they are present. Psychologically this makes abstract behaviour possible.

Acquiring this intricate system of symbols for verbalization which is called language is the task of every child" (1) (p. 10). Through his stages of development, Piaget explains that a child reaches the verbal level when he can take the object concept internally, integrate it and, then he transfers it into symbols (true central language process behaviour). The child can represent events not present in his perceptual field by symbolic imagery (2).

Therefore it would seem that we can safely assume that "verbal" children would include those children who are capable of acquiring a language which they can use for learning and broadening their mental and functional skills. Verbal children can use a language system with no concern about the specific mode of communicating that language—manual, oral, or signs. Programs which service verbal children may also conceivably include children at the "protosymbolic" (3) level and proceed through all the intervening levels up to secondary school academic achievement.

Since 1932, several residential programs have been established and are currently servicing verbal deaf-blind children. Since the 1963-64-65 Rubella epidemic and the enactment of the amendment to the Elementary and Secondary Education Act of 1965 which provided for the establishment of extensive services for deaf-blind children, a number of new programs have been initiated. Some of the types are described in the following list:

A deaf-blind department in a school for the blind.
A program for multi-handicapped children in a public school or a state school for the blind.
A program for multi-handicapped children in a day public school for the deaf or a state school for the deaf.
Pre-school programs for the deaf, blind or deaf-blind children.
Special class in a day public school.
Day nursery school program.
Home teaching.
Laboratory class and/or diagnostic class at a university.
Programs in state institutions for the mentally retarded.

Some of these programs may be temporary, some may survive for many years. At the present time, the major portion of verbal deaf-blind population is being serviced by long existing residential programs. Apparently, this is so, because the facilities for academic services existed long before the devastating epidemic and these agencies are prepared to accept verbal children at all educational levels. Undoubtedly, the number of these facilities will increase if and where it seems necessary, for there seems to be no reason why day programs would not also meet these needs—if they could supply the necessary tools. Providing varied socialization experiences might prove to be a difficult element in a day setting. However, creative planning and extra time may solve this problem.

Since it would be tedious to write as well as read intricate descriptions of the content of the various programs for deaf-blind children, it may be less cumbersome and more realistic to consider some of the elements which I think contribute to an effective program for verbal deaf-blind children.

The very young deaf-blind child, at the outset of his language acquisition, is faced with some specific problems before he can progress to broader skill instruction. He needs meaningful stimulation of his sensory and other input pathways. He needs to be directed on how to organize this stimulation, internally and externally, and eventually shown how to effectively utilize this organization as he develops and becomes an active member of society. Solving these problems for the verbal deaf-blind child has to be one of the important goals of the educational program. Some of the other goals directed toward each child it services would be:

a. Establish an appropriate communication tool which will expedite language acquisition receptively and expressively.
b. Establish realistic achievement aims for each child so that he will not succumb to undue pressures for learning, but instead he will be motivated to reach his potential.
c. Provide teaching strategies which will help the child to overcome, compensate, or adjust to his sensory deficits and his additional handicaps.

There are some specific elements which I have found to be most important in helping the educational program achieve its goals and foster wholesome growth in the child. These elements include:

a. High adult-child ratio for teaching in all areas as well as in the classroom and living environment.
b. Individualized teaching strategies to meet the child's personal needs.
c. Many and varied normal childhood experiences in which the child is personally involved—outside the classroom toward the community and world. The child's world must be enlarged

and he needs to be guided toward making meaningful associations.

d. An established criterion for providing each child with the appropriate communication tool.
e. Good supervisory personnel who can help coordinate the total program and provide support and encouragement to the teaching staff.

There is no substitute for a well-organized educational program based upon the sound principle of placing the child in the type of environment which can take maximum advantage of his innate talents. With these conditions, the deaf-blind child will prosper with the knowledge and understanding of his environment along with his own role in society and limited only by his individual functioning level. During the entire stay of the child in the program, it is essential that all the adults concerned with the child, and there will be many because of the multiplicity of his disabilities, should be well coordinated and guided by the school administration so that the child will receive optimum conditions for growth and learning. These adults may include personnel such as: medical doctors, nurses, social workers, psychologists, dormitory staff, and the immediate members of the department staff—teachers, assistants or aides, and supervisors. If the department is a part of a broader school program, again it is necessary to have good communication between the department staff and the staff of the school-at-large.

For the remainder of the paper, I have generously extracted from a paper which I shared with a group of colleagues at a very recent workshop this year. The topic was similar and my views have changed very little since then.

Throughout the child's enrollment in a program for deaf-blind children the primary concern, of course, has to be for the total individual. There needs to be a continuum of related programs which contribute toward this total development.

Basically we should look for a tailored or individualized academic program which can meet the needs of the verbal child whether he is at the beginning symbolic level or as high as the secondary school level. But in addition to this particular area, the program should also furnish the following learning experiences:

1. Social-development experiences.

Social adequacy requires long-term development, individual involvement, and gradual complexity as the child's concepts broaden The major portion of this program for social interaction can and should take place beyond the classroom program and under the direction of knowledgeable assigned personnel and assisted by both teaching and dormitory staff. These social experiences should be so structured with optimum adult assistance that each child receives stimulation to socially interact and is motivated to participate in and absorb social learning in varied types of social events on and off the campus.

These social experiences, hopefully, will help him establish meaningful relationships, become sensitive to other people, attain acceptable social behaviour, and be able to assume social responsibility.

2. Pre-vocational training.

Concomitant with other learning areas, the pre-verbal child requires long-term development in the area of vocational skills. During the early years, the emphasis would necessarily be placed on muscular growth, basic manipulative skills, and awareness of creativity. But this stimulation should then progress toward more complicated craft skills and imaginative projects in preparation for more advanced vocational training after the termination of his school years. Another equally important goal of pre-vocational training is to furnish each child the opportunity to find means to occupy his leisure time purposefully, for many of these congenitally verbal deaf-blind children may spend their adult years at home or similar environments.

This pre-vocational training scheme should also make provision for the older students to spend part of a day at a job situation on the campus or, if arrangements can be made, off the campus. This phase of the program would also have to be closely directed and supervised since it would be a basic job-learning experience where the student would be acquiring work skills and experiencing more interpersonal relationships.

3. Physical Education Program.

The importance of maintaining good health and physical fitness cannot be emphasized too strongly and should also be integrated throughout the total learning process. This concept requires time for development, and begins in the very early years when a physical therapist is available if necessary and good motor skills, water therapy, and encouraging play and competition are very important. This program continues through the periods of growth and leads to the later years when emphasis is then placed on the personal hygiene and grooming habits, importance of good eating habits, fresh air and exercise, care of illness and preventive measures, and fair play in group activities. All these are important contributing factors toward the development of the total person —each student at his own level of achievement and at his individual pace.

4. Mobility training.

   The ability to move about efficiently in and out of buildings, follow different kinds of pavements, utilize efficiently the residual sensory channels—all this calls for systematic teaching just as we handle other skill training. Mobility and Orientation are now recognized as important skills which the visually handicapped person should attain. The deaf-blind person, in addition, requires specific training in the use of his residual hearing to help him identify, discriminate, interpret, and localize sounds as he moves about.

   This area of learning, too, is a long-term development period, commencing with experiences in the early school years, and gradually becoming more difficult as the child demonstrates capability in moving about independently over a broader area.

5. Psychological-educational-social counselling.

   The verbal deaf-blind student experiences normal desires and needs. As a young child many of these needs are basic and can be satisfied by the teaching and dormitory staff. But in the natural process of emotional and mental growth, the deaf-blind young adult faces more complicated issues and questions, is more potentially frustrated and very much needs professional counselling. However, it is important that the counsellor learns to communicate with the student at the appropriate level and uses the appropriate method and understands the kind of problems and areas of deficit that are common among deaf-blind youth. The counsellor should freely consult with the teacher and dormitory worker for open discussions related to the student's situation thereby furnishing optimum supplementary guidance for proper living habits and attitudes.

This conception of a program for verbal deaf-blind children is performance based, highly individualized, and utilizes on-going diagnosis and constant re-assessment by the qualified teacher and other members on the staff. None of the items suggested are especially innovative, but it is hoped that some sophisticated attitudes were projected which, in a small way, indicates that we are continually learning more about these children and their needs and specific recommendations have been noted so that these needs may be met.

I have made an effort to be practical and demonstrate full awareness of the day-to-day unglamorous teaching chores which have to be done to achieve the ultimate goal—a well-adjusted, self-reliant and competent deaf-blind citizen. He needs to be prepared, if he is capable, to adjust to living in society. The levels at which the goal will be reached are as varied as the number of students involved. Some may only approach first grade reading level and there may be some who may succeed at a fifth or sixth grade reading level or higher. It has not been the experience of the writer to know of any congenitally deaf-blind child with severe additional handicaps to achieve a secondary school academic level. In each case, we must be prepared to help him fulfill his potential.

This program as described here would thrive best where there are maximum opportunities for real experiences and integration can be furnished, where carefully supervised structuring can take place, where there is knowledgeable personnel, and where there is available other students for purposes of integration and social interplay. The various aspects of the total program are important, though each aspect could be pared or enriched—according to the individual program environment.

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TEACHING A MOTHER TONGUE TO DEAF-BLIND CHILDREN

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How many of us are masters of our native language? Do you know the exact meaning of every word in the biggest dictionary? Do you use all the words you understand in conversation? I propose to limit myself to the discussion of the acquisition of the first two or three thousand words in a child's vocabulary.

Our difficulties are not all to do with vocabulary. We have to teach children to use gender and plurals and case with nouns. They must absorb about twelve tenses of each verb. They must know how to ask questions and change questions and answers into negative forms. They must use words whose meanings vary from sentence to sentence. They must use structural words which seem to be meaningless.

The children may learn to copy sentences they have "heard" in appropriate contexts. They have to be able to create new sentences that as far as they know have never been said before. This ability to use language patterns—there are twenty-five major patterns in English—and to use new nouns and verbs according to established rules within these patterns, to turn sentences around from passive to active constructions is what language is all about. The normal hearing child of average ability masters most of the constructions before he goes to school. He will be able to use difficult constructions by eight years old.

The method of communication which we use influences our language. When we send a telegram we are terse. When we speak on the telephone we may be kinder or more unkind than we dare when face to face. We adapt our language to different situations and to different methods of communication. Language implies speech, but we also call the written word language.

Ideally we shall teach our deaf-blind children to use speech through residual hearing and vision when this is present, or through touch. We shall amplify sounds and use low-visual aids. We shall use a combination of these when we can to help some children.

When we use speech we are using rhythm, pitch and stress of different kinds which add meaning to the actual words we use. Our voices punctuate our sentences. Our emotions are reflected in our inflections as well as our choice of words. When we write we have to choose our words and the arrangement of words with much greater care. If we do not know who will read our words we have to be more exact.

We teach children who have a wide variety of handicaps. Sight and hearing loss is, in a child otherwise normal, not very difficult to overcome. We know how, and we have seen great successes with totally deaf-blind children of good intelligence. Today we have to teach children of very low intelligence as well. Some of our pupils may have cerebral palsy or other physical handicaps. Some have specific learning disabilities. They are not all able to learn speech.

I do not propose to discuss non-verbal systems of communication which are based on ideas rather than words, or signal systems. It is essential that we consider which methods of communication are most appropriate for each child. We may select children who will be able to use particular systems, but let us be sure that other provision is available for those who need them. We should be able to transfer a child from one system to another when it seems necessary or wise. We must make contact and help children to develop whatever their potential. If a signal system is necessary for some children or if their families use an ideas system and it seems appropriate for a period, we should not be afraid to try anything.

Of necessity I shall be speaking about English Language as it is spoken by me in England. I hope that what I have to say will be useful to you whatever the language you use to teach. In America "presently" means "now." In England "presently" means "soon". Different tenses are used with "presently". The American use is older and more sensible. I hope to avoid ambiguity and to keep my own English simple so that it will make sense even in translation.

Does all thinking go on in muscular movements or do movements in nerves and muscles accompany thought? We do not yet know. It may be that we transfer from one system to another. There is certainly a time when we think without words. Our thinking is also faster and more precise when we use the right words. Our actions are also more effective when we no longer think about them consciously. How far can we teach language through movement?

Are we innately predisposed to learn language or does our learning depend on our environment? We know that any innate potential which our children may have to acquire language will have no expression or ability to make use of that potential unless we provide the opportunity. How far can we ensure that the environment is geared to help in this most difficult task?

Normally children are using two or three words together by the beginning of their third year. Within a year or eighteen months they are using nearly all the rules of the language. By the time they are five they have a vocabulary of between two and five thousand words. The figures vary from expert to expert. What we should notice is that many deaf children take ten years or more to reach the level in language of a hearing child entering school.

The way in which most hearing children learn language is obviously effective. We must study this method to see how far it is effective with deaf/blind children. We want to teach naturally and to achieve natural not stilted language.

Father van Uden says in his book "A World of Language for Deaf Children" that we should avoid what he calls "baked" sentences. A "baked" sentence is a meaningless and artificial sentence devised to teach language in an unnatural manner. Father van Uden stresses the conversational approach and the way in which a mother re-inforces and develops her child's speech. We do not speak in full sentences with Subject, Predicate and Extension of Predicate in everyday conversation. In fact, very few sentences are ever completed in normal conversation. We can anticipate the end of most sentences.

Our language is made up of words. The words are linked to create meaningful messages or sometimes nonsense. The words may be grouped first into two sets. The first set denotes an idea which creates a mental picture which may not be very exact. If I say "dog" you picture some four-legged animal without horns or a trunk and within certain limits of size. Most verbs fall into this category and so do many adjectives and adverbs. Prepositions, such as "on" and "inside" are also in this category. The other set, like pronouns, may alter their meaning according to context or may be structural words limiting the sense of the first set and fulfilling a subtle function in a sentence.

Young infants, crawlers and some toddlers name people and some objects and they point. They also learn to use prepositions, or adverbial adjuncts very early. These convey very primitive ideas. Cats and dogs use them if they can. The baby wants "up" and the carried toddler wriggles and wants "down".

Physical sensation associated with movements may help establish the use of prepositions. Experience should be closely associated with the word. We give as wide a concept as possible as soon as we can. We put the child *in* a cot, *in* a chair, *in* a cardboard carton, *in* a car. We put his foot *in* a shoe, his fingers *in* his gloves. We help him to put his food *in* his mouth and to put his toys *in* a cupboard. Large and small movements are involved and the phrases used practice "in" while naming many other things which are apparently of greater importance and, therefore, more easily remembered.

The naming of people, objects and actions sometimes involves the use of the plural form. Gender will matter in some languages more than others. In English a child may need to differentiate between a postman and a postwoman. (I do not think a mailwoman is helpful to concepts of gender.) We should be careful to use these differences and to make the necessary comparisons from the outset. All little children make mistakes. These mistakes are often proof of progress in comprehension and knowledge of structure. All we need to do is to repeat the phrase correctly and to make a point of talking about any examples which may arise in the next few minutes or days.

Experience will help the children to form clearer concepts. We must see that children handle whatever is safe and accessible. The more names a child can use the quicker will be his thinking. He will be able to think in the absence of an object. As soon as we are sure that one name is established, we may be more precise, or give a general term, or use an alternative. We may use an accepted nickname or a brand name. Choice may help a child feel the need for naming.

Verbs are comparatively easy as far as demonstrating meaning, but they have peculiar problems. We must try to use verbs naturally so that familiarity will lead to right usage. The most natural is not always the most easy. I have found that the *present participle* can be used for labelling actions and as an adjective, and with an introductory word, so that if two simple past tenses "saw" and "went" are used we can help the children to use a wide range of different verbs. We can name pictures or real things as "John sitting in a chair". "Birds flying in the sky". "A walking stick". "A hammer for hammering or knocking in nails". "Look at the horses galloping". "Feel the piano vibrating". "I saw a man building a house". "Mary went swimming". "Mother went shopping". It is easy to progress to "Mother is shopping" or "Mary will go swimming when she is better" or "The man has been building that house. He is going home to tea now". But I would emphasize that we use the best form but at the same time give the child an opportunity to feel at home with a form which has fewer variations for the time being.

Very early on we should teach the children, by rote if necessary, to say words like "Please", "Thank you" and "Sorry". Children are expected to use the usual forms of greeting and there is ample opportunity to practice "Hello", "How are you?" and "Good-bye". They enjoy doing plays using very simple language—The milkman knocks on the door and when it is opened the man says "Good morning". The mother says "Thank you" as he hands over the bottles and they both say "Good-bye". The play is extended when the Mother can say "Three today, please", and the milkman may have been able to ask "How many today?" Drama is introduced as they learn "Be careful" and "Oh Dear!", "Never mind" and so on as the milkman trips up. Children enjoy dressing up and using props. Normal two year olds can manage to pretend, so this should not be too difficult for most of our children.

The extension of play-acting, involving the familiar for practice and the unfamiliar to extend the children's experience can continue throughout their education. Opportunities for conversation are unlimited. There are times when the children can put themselves in someone else's shoes. They can develop imagination and learn to tolerate playing unpopular characters. They can be led to think about being old or hungry or very kind and generous. The language of feelings becomes meaningful and we can pave the way for trials they will face later as well as compensate for some of their limitations.

Apart from playing parts there are games which help to give practice in language patterns. It is permissible in games to ask questions to which you know the answer. We must try to get the children to ask questions, instead too often asking them questions which they know we can answer ourselves. Hiding and guessing games are most useful.

There are also word games with parts to be learned by heart which may serve particular purposes. We must try to let the children feel a pleasure in words and this is not easy for deaf children. We must look for new ways to help them to appreciate them.

Training in rhythm and melody is helpful in the development of language. Learning simple rhymes which are grammatically correct and have good idioms will help to "screw them home" as Father van Uden so aptly expresses "fixing in the memory". We should look for poems and rhymes to help us with repetition. It is one thing for a child to have a concept of each word in a passage, but quite another for him to make sense of the passage. We enjoy words and learn from listening or reading without complete understanding. We like to stretch our minds. We should give this chance to the children too. We can tell stories without analyzing the meaning of words and thus losing the thread and excitement. The meanings may become clear as time goes on.

Through communication with each other the children will learn. They may learn to make mistakes, but our greatest opportunities for teaching lie in observing the children's mistakes and in helping to put them right. We should encourage the children to use language freely and use the mistakes they make to clear misunderstandings. If we have a group of children using faultless English, it is a danger signal, not a reason for satisfaction. We should collect children's errors and study them. Are they signs of growing understanding of rules that underlie the system?

LEARNING-DIFFICULTIES AND DEAF-BLIND CHILDREN

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You need quite a bit of courage to discuss a topic as "Learning-difficulties and deaf-blind children." The field of learning-problems in children without a sensory loss is already such a complicated one, and so recent and the results of study so contradictory, that it would be a deed of audacity in itself to give a survey of these scientific findings.

On the other hand those who work with the deaf and the blind were and are so concerned to meet the direct needs of the deaf child or the blind child, that their field of study almost develops separately from the field of learning-disorders. This is very surprising to me. We all know that the cause of a severe sensory loss is located in the brain, and according to many authors who have studied children with learning-problems "the central nervous system must be intact or psychoneurological disabilities are likely to occur" (Myers and Hammill, 1969).

It is a sad fact, however, that the schools for the deaf and the blind hardly make any effort in the selection of their children according to learning-disabilities. In relation to this, I would like to quote one of America's research psychologists, McCay Vernon, who says, "Multiply handicapped deaf children represent the most talked about, least acted upon problem in the area of deafness today. Evidence of this are figures indicating that from 15 to 35 percent of deaf youth, most of them with multiple disabilities, are either not accepted into educational programs for the deaf or else are dropped out when or before they are 16 years of age" (1967). I know Institutes sometimes have a department for multiply handicapped deaf or blind children, but the selection of these children is often so poorly done, that you find all sorts of multiply handicapped children together: mentally retardates, emotionally disturbed, aphasics, etc. By calling this total group "neurologically impaired", it looks as if one unifying characteristic is found upon which selection can take place, but I agree with Gomez (1967) who described, in an article called "Minimal cerebral dysfunction, maximal neurological confusion", this sort of diagnosis "wastepaperbasket diagnosis".

It is not only true that professional people who study the blind or the deaf venture themselves too little into the problems of the child with specific learning-difficulties, almost in every study of this subject the author excludes the sensory impaired child from his definition. For instance, a widely accepted description of children who have specific learning-disabilities is the one given by Barbara Bateman (1965). She lists four characteristics this child has to have in order to be labeled as "learning disordered". In the last part of her descriptions she excludes the children who already have a primary handicap. So the door is closed both ways. This causes many strange situations. A school of multiply hard-of-hearing children is spending quite some time in developing the child's visual perception by using the Frostig program, hoping this program will suit their children too. However, as recent research has shown (Uden, 1970) hearing-impaired children perform excellently on visual tasks! By simply applying each other's results, the problems are not solved. It is not only a friendly remark to our guest school, when I say that Perkins Staff is aware of the fact that not all the child's problems can be related to the blindness as such. Among the speakers at the International Congress of Orthopedagogics in Amsterdam 1949, which dealt with specific learning-problems, was only one American, he came from Perkins! And the other day I read in their monthly magazine *The Lantern* that a course on Language disorders was offered to their teachers. In this paper, I hope to bridge to a certain degree the gap between both fields of study. By doing so, I continue the line followed by these conferences because the last speech given at the St. Michielsgestel seminar on deaf-blind education in 1968 was the one held by Professor Bladergroen called: "Motor development and learning-disorder". In summarizing her paper, I made the following remark: Professor Bladergroen has told us that a child with function disorders is continually exposed to the danger of getting derailed somewhere in the process of learning. This thought leads us to the field of learning-disorders, a field hardly explored as regards the teachable deaf-blind child. This means a new assignment for all of us . . . (van Dijk, 1971).

Well, you may judge for yourselves, if I have done my homework well. In a paper as this, one can only describe a few of the basic problems. The literature which accompanies my paper will give sufficient further information for those who like to go deeper into the problem. I will confine myself to language problems in educable children. Problems in the growth of symbol consciousness, a problem you often see in the young deaf-blind child, have already been discussed in several publications (Robbins and Stenquist, 1967; van Dijk, 1968; Guldager, 1970).

The problem, I hope to put forward here, did not originate from my work with deaf-blind children. The department of which the author is the head at the St. Michielsgestel School for the Deaf, does not only exist of deaf-blind children, but also of children who failed to make progress at the school for the deaf. This is a school whose philosophy it is that deaf should be taught an oral mother tongue. The reason why these children made such little progress was often not very clear. If you looked just roughly at the intelligence of these children, as it is summarized in an I.Q., you did not find any reason for the failure in learning.

In a pilot study, our research psychologist Drs. A. v. Uden found an average I.Q. of 107 for the group of "low-achievers". Teachers sometimes reported emotional problems in these children, but mostly they were due to the fact of being unable to express themselves or the failure in planning their behaviour: such as not completing a task, e.g., the child is asked to build a house with blocks, he finishes the walls but seems to be uninterested when the sloping roof has to be put on top. Some children are reported to be destructive and disorderly. One report says that the 8-year-old deaf girl just poured a full cup of milk over the table, to see if her cup had a lion (the factory emblem) underneath.

Interesting were the comments of the speech-therapists. They found it hopeless to teach these children. After a great many efforts they are taught to articulate a word, the next day they had forgotten it completely. It was hard for the speech-teacher to let the child wait until she has finished articulating the word herself. Immediately when she opens her mouth, the child starts talking too. . . . Instead of learning the articulation patterns better by letting the child repeat the word a few times, it is getting worse; "limonade" which is spoken correctly one time, deteriorates completely: "lilonade" (perseveration), "linomade" (inversals), "linade" (contraction), "lomo" (omissions), etc. The results of speech-therapy carried out along the classical lines were often very unsatisfactory. Interesting are the art-teacher's comments. She describes the child's drawings as very detailed, although sometimes out of proportion and very vivid in colour.

If you show this description to an experienced teacher of the deaf, she holds up her finger and says, "Yes, in my experience I have had several of these children. They had a terrible time in school; things went better, however, when they started their vocational training. They liked hand-skills and turned out to be fine handworkers, although their command of language remained poor throughout their lives." This description as given here might have some contradictory aspects. I hope to show you that all these behaviour patterns fit into one clinical picture.*

In what direction we have to search in order to understand the problems I started with the following experiment might show. Three groups of children, age 3;6 until 6;5 were asked to execute simple rhythmic patterns like tapping on the table and while doing so at the same time saying ba-baba. (The child could gain a maximum score of 40.) The group of 11 normal hearing children in this pilot study, covering the mentioned age period, obtained an average score of 39.66.

A group of congenital deaf children (N. 36) obtained a score of 27.71, while a group of 14 children with a hearing loss between 75-85 db. ISO standard, obtained a score of 32.66. This means that in what we call *eurhythmia,* deaf children are significantly backward comparing them with hard-of-hearing and normal hearing children. Eurhythmia can be described as the ability to execute, imitate and remember rhythmic movements.

The better score of the children with considerable residual hearing gives support to the argument that the development of rhythmic behaviour in children is correlated with hearing. This is understandable, because these children hear already from a very early age their breathing, the sounds they produce by banging their hands against the cradle, etc., which seem to be very important factors in the eurhythmia development. Apart from the backwardness in eurhythmia, one can observe in deaf children another peculiarity in their execution of movements. It will strike you that quite a few of them have difficulties in finding their limbs quickly. Especially if the child has to shift from one sort of movement to another, he runs into difficulties: other limbs than the required ones are coming into action, a sort of muscular stiffness can be observed and the speed in which the movements have to be executed diminishes. Myklebust (1960) reports that his experimental group of 11-year-old deaf children was 3 years behind their peers with normal hearing in a test item of the Oseretsky test, which is related to this phenomenon. The backwardness was less if the child has to manipulate with material, like putting pegs in holes, etc.

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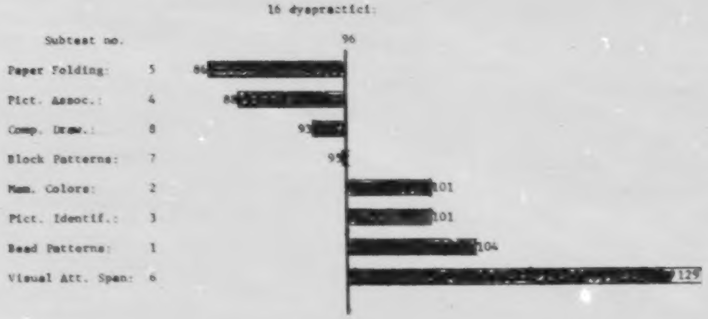
* It is through the intensive work of Drs. A.v. Uden that the syndrome of which these children are suffering became clear to us. With his permission we use here some of his research results.

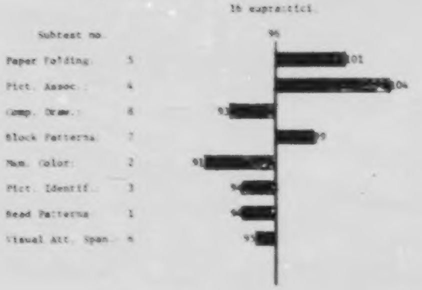
The same behaviour was studied by Van der Sluys in 1959. He found good results with his deaf children when they had to execute movements with a ball within, what he calls, the "grasping-space". When he asked the children to swing their arms in a certain manner without any material, the score dropped considerably.

In order to make the distinction between movements with and without material we use the term: transitive and intransitive movement. It is not a big step forward in this line of thinking to relate eurhythmia and eupraxia to speech and lipreading. Here, too, we deal with a technique in which both functions play an important role. If we speak, we do it rhythmically and in fluent articulation we have to find very quickly the different parts of our articulation organs, we have to distribute the proper doses of energy in order to produce the dynamic accent of the words, etc. The hypothesis was proven when it was found that there was an interrelationship between eupraxia and eurhythmia on the one hand and lipreading and speech on the other. The correlation-coefficients were: 0.76, between eupraxia and speechreading, 0.77, between eurhythmia and speechreading, while, what is understandable, the correlation between eupraxia and eurhythmia was extremely high 0.85. (in all cases p. less than 1%).

Even more important and interesting than these findings are the studies on memory. It is only part of the truth to consider the enormous difficulties deaf children meet in their language acquisition as a matter of frequency. Indeed, according to some psychologists (see Uden, 1968, p. 93) a hearing child is speaking or babbling to himself, or listening to speech of others during 80% of his wakeful hours. This means about three million words a year. Deaf children in the best environment have no chance in keeping up with this. In addition to this fact comes the backwardness of deaf children in their memory for verbal material. There are enough studies to support this statement (Hiskey, 1956; Blair, 1957; Conrad, 1964). It is the memory for memory for sequences which must have our attention. This, namely, plays an important role in learning. This does not only count for deaf children, but also holds for the child with reading problems. According to Bakker the child who is in the "transfer stage" (that is the stage in which he has to learn that the visual signs, the printed letter, stand for the auditory signal) is greatly dependent on his ability to perceive and retain temporal sequences (Bakker, 1970). Indeed, this ability is significantly related to the reading achievement. In the same study one finds an experiment in which 30 seven-year-old children and 26 ten-year-old ones were presented sequences of meaningful and meaningless figures. The study showed that a distinction could be made between children who belonged to the mediators and the ones who could be characterized as non-mediators. The first group consisted of those children who appear to solve a certain perceptual problem by means of a verbal medium, while the non-mediators did not follow this procedure. The mediators did better on temporal ordering than the non-mediators. Thus, it seems that some children try to support their memory by using a coding system. We will not discuss here the nature of this coding process, but it exists very definitely, as is shown e.g. in the study of Thomassen (1970). If the verbal (articulatery?) coding is so important, does the memory function of the dyspractic/dysrithmic deaf child differ significantly from the not-dyspractic deaf child? This is a logical question because the coding process can, as it were, be considered as an activity of internalized speech in which of course eurhythmia and eupraxia play their roles. Comparison of the test profile of the Hiskey-Nebraska test 1966 of 16 dyspractic deaf children, with 16 eupractic deaf children showed indeed that the dyspractic child solves his problems quite differently from the eupractic deaf child. To put it roughly: in test items concerning memorizing simultaneous unrelated visual data (Imitation and Memory of Bead Patterns and Visual Attention Span: that is remembering series of pictures presented simultaneously) the dyspractic children score significantly higher than the eupractic children, while the latter were better at paper folding and picture association. The deaf eupractic child can be considered as a hypervisual child.

Everything that is invisible—as the relation between pictures—is not understood by him. Beyond the visual world hardly anything exists for him, that is one of the reasons why his behaviour as stated earlier is so rigid, that is the reason too why he has fears; because he does not understand the essence of things, e.g. between a dead person and somebody asleep: "they *look* the same don't they?" This was the reason for a child that fits the descriptions here, not to go to sleep, anymore because his mother might consider him to be dead and bury him while he was sleeping (van





Dijk, 1971). The language development of this hyper-visual deaf child is in danger, if he picks up the gestures and signs many badly educated deaf children make among themselves. These gestures look like pictures drawn in the air. The children are inclined to associate a certain gesture with one specific meaning. To state this with a simple example which I can multiply by a hundred. In a reading test, a picture of a tree is drawn with a rope next to the stem. A printed question asks the child to button the rope around the tree. What do some of these children do? They draw a coat button on the tree. They read the word "button" and this immediately evokes the signal of the hand configuration showing the button shape. You will understand, unfortunately not many educators of the deaf understand, that the primitive sign language endangers the only chance for an acceptable level of development that is needed. You just take a simple story and you will find how many different meanings words have.

Summarizing we come to the following conclusion: There is a type of deaf child, as far as we know not yet described in literature who scores within the normal range in an intelligence test, who reaches a high score on memory for simultaneous visual data, who fails however in reasoning which acquires inner language and whose greatest difficulties lie in monitoring their movements and finding the limbs. The last symptoms can be considered as basic for the syndrome. The syndrome can be completed further by word-finding difficulties, problems of integrating auditory signals with visual signs (dyslectia) finger agnosia, body scheme and rhythmic difficulties. We call this syndrome dysphasia, since it has some features in common with childhood aphasia. The description given here is much more refined and based on more adequate research than the definition of aphanaic children advocated by Ewing (1930) and McGinnis (1963).

At this moment we think that 30% of the deaf children of our school suffer from a light or more severe form of dysphasia. At our school almost 15% of the population is actually enrolled in classes for dysphasic children. I have elaborated so extensively on this syndrome, for several reasons. Firstly it is hardly recognized in schools for the deaf and if it is recognized an adequate program has not been developed. This is also the opinion of McCay Vernon (1969) who in his study on multiply handicapped children, talks about dysphasia but completely overlooks the dyspractic problems, he does not even mention the rhythm which is as we have seen one of the basic problems of these youngsters. The second reason of bringing these ideas forward is, that with the necessary prudence in mind, I think we will very often find this syndrome or one or more symptoms in deaf-blind children. I have to be careful since research on a large scale is hardly possible with our group of 24 deaf-blind children.

There are so few of them that any statistical proof is impossible. I found, however, through studying the individual cases, that it is a plausible assumption that dysphasia occurs frequently in deaf-blind children. This hypothesis is further reinforced by the etiology of maternal rubella, the most frequent cause of deaf-blindness. Studies which bring the development of deaf children in relation with its etiology show that the rubella child and the premature deaf have the most additional handicaps next to the primary sensory loss. A study carried out at Riverside School for the deaf in California mentions a percentage of 21.9 of "aphasoid involvement" in rubella children. These data are not obtained through sophisticated research, since they are based upon teachers' judgement, because of "absence of objective measures or tests of the

SOME TEST RESULTS OF SIX DEAF-BLIND CHILDREN

Name	Age	Hearing Loss ISO Standard	Sex	I.Q.	Eupraxia Max Score 48	Finger Motor Max Score 42	Rhythm Max Score 40	Lipreading and/or Tadoma Method	Graphical Conversation	Speech
I.M.	7;10	75	F	Hiskey M.A. 6y	poor	poor	very poor	simple commands	five word sentences	none
M.A.	6; 2	130	F	S.O.N. ±90	poor	poor	very poor	simple commands + questions	words (large print) drawings	elementary sounds
C.S.	6; 8	120	F	S.O.N. 90/100	poor	poor	very poor	simple forms; daily convers.	words (large print)	elementary sounds
O.B.	6; 8	70	M	Griffiths 85/95	poor	poor	good	compl. commands + questions	none	connected speech
I.S.	10; 6	120	F	S.O.N. 90/100	poor	poor	very poor	compound sentences	compound sentences	words short sent.
G.C.	7; 7	85	F	———	very poor	poor	very poor	simple commands	none	none

Since it is hard to obtain exact scores on these children, a rating scale is used. The maximal score is divided by five. The qualification "very poor" was given when the child obtained less than ⅕ of the maximal score.

presence of aphasia in deaf children" (McCay Vernon, 1969, p. 83).

It is our opinion that if deaf and deaf-blind children are assessed with the tests mentioned here the percentage of dysphasia in rubella children will be considerably higher.

To illustrate this I give you the ratings of our rhythm and eupraxia test for five rubella children and one premature child.

You see that the intelligence of these children is within the normal range. The speech failed to come. However, through intensive speech-therapy the children could learn to speak the various vowels and consonants, but putting them together in a word was almost impossible for the child. The dyspraxia was clearly present in these children in the motor of the articulation organs. The children obtain better results lipreading at close distance; this is surprising since speech and lipreading are very closely related (Heider and Heider, 1940; Ewing, 1967).

We think that the Tadoma-method can be given credit for this. Our children, who have enough sight to lipread at close distance, are given the opportunity to touch the speaker's face with the thumb next to the mouth. Here we see one of the benefits of the multisensorial approach, because the visual perception is supported by the tactile sense. Moreover all our children are wearing hearing aids, and if the child only picks up the vibrations in his ears, it can already mean a gain of 10% of information (Hudgins, 1940; Uden, 1912). As the audiograms show these children are not vibration cases, so wearing the hearing aid supports lipreading considerably. What surprises most is the level of the ideo-visual reading. What is meant by this and how we apply this already at very early age, I hope to explain in the next part of this paper.

NEW APPROACHES TO THE LANGUAGE ACQUISITIONS OF EDUCABLE DEAF-BLIND CHILDREN

In the preceding part of this paper, I have elaborated on the phenomenon of dysphasia in deaf children. There is hardly any doubt that this syndrome exists on a large scale in rubella and premature deaf-blind children as well (see appendix). In the beginning of our work we tried to develop speech in the auditorial-visual impaired child. Quite some time was spent on speech-therapy. However, despite the efforts of many of our teachers, some children did not come to real oral communication. It is true, they learned to speak 50, or 100 words, but that is of course insufficient for conversation. We understand now why they failed. Under the influence of our work with the dysphasic deaf, we changed our educational program for the deaf-blind as well. We assumed that their learning was hampered by the inability and recall temporal ordering, because of dyspraxia. What were these changes in method? Well, the strongest side in the deaf-dysphasic's behavior is the ability to memorize visual-simultaneous information. If you look for a method of communication which is in correspondence with this strong side, you will find this in the graphical conversation. Instead of talking to the child you write down what you want to say to him, or you talk first and then write it down immediately. This sounds very simple, but I find it very hard to make clear to our teachers what is really meant by "conversation". This has not so much to do with the language programs for the deaf as introduced by Buell and Pugh, where the child has to put words in the scheme of the Fitzgerald Key. No, by conversation something quite different is meant. It is a mutual attempt to find out what the other person means, which is characteristic for a good dialogue. It is question and answer in which the intention of the participants in conversation becomes sharper and sharper. We see so often in schools for the deaf so-called stories with sentences as: Today is Monday, tomorrow it will be Tuesday, etc. This is no conversation. The best model of a conversation you find there is when a mother is talking with her young child. This interaction between mother and child is scientifically studied by Brown and Fraser (1963), Fraser, Bellugi and Brown (1964) and Brown (1964). I will give an example. It is about Eve, an 18-month-old girl who had just started to use two-word utterances. Such as "Mommy soup". It was observed that every time the child repeated this sentence the mother seized it. She made the child's utterance correct according to what she thought Eve meant; she also expanded the sentence. This expansion is often done by parents and they do it every time when the child is present to hear them. In the case of "Mommy soup", mother's expansions were:

"Mommy is going to have soup."
"Mommy has had her soup."
"Mommy's soup."

A machine cannot do this; the mother keeps the nouns in the order given by the child and adds grammatical function words: inflections, auxiliary verbs, articles, and prepositions. It takes a long time before the child starts producing sentences according to the model the mother has offered, since the child will reduce the length of the sentence to the level of language development. Through a lot of practice the sentence length will grow and function words will be used. When we analysed this sort of language situation, it became clear that the mother selected her expansions according to what she thought the child had in mind. We are not always sure if the child really means what her mother thinks she means. The chance of misunderstanding is less however when the child expresses itself, because it is expecting something to happen. (We have called this the "anticipating method"—Uden 1968, Van Dijk 1967.) When it is almost lunchtime and they often have soup the chance of misunderstanding is less, than when the child talks about soup at another hour. We see that the mother plays a double role: she seizes the utterance, gives it the correct grammatical and syntactical expansion—she is as it were talking for the child—and then she picks up her own role by saying: "Yes, I am going to have my soup."

"Sure, I have had my soup."

"Yes, that is my soup. I will give you some too" etc. The mother reinforces the child in his effort by imitating it. She never says "no, you say it wrongly", on the contrary she uses parts of the child's utterances. Mother is very sensitive to the intention of the child, she does not give a monologue in the hope the child will grasp the meaning.

The principles of this "grasping or seizing" method can be applied to deaf children, whom we try to teach an oral mother tongue, but the same principle can be used in written conversation. If the child is not yet able to write you write for him.

I will give you an example of a conversation (written) between a teacher and a partially-sighted deaf girl (6 years). The situation in which the conversation took place was centered around a toy the teacher has bought for the child. It was a duckling which could be wound up. The teacher has several pieces of paper on which her photograph is printed and the pupil has sheets of paper with her own picture.

When the child sees the toy, she utters something like "me-me", while tapping with her finger on her breast. Then the teacher immediately grasps the child's paper and writes down while the girl is watching her writing:

"for christa", then the teacher takes her paper and writes:

"yes, for christa".

Then the child makes the movement of flying. The teacher thinks the child means the toy is a bird. She writes on the child's paper: "A bird", then on hers:

"Yes, it is a bird" and adds:

"A duckling" etc. etc.

The comment of people who are not familiar with this procedure always is: how can you use a written form of language when the child cannot yet read and write itself. To answer the last question one could refer to the normal child development: doesn't a normal child understand already a lot of what is said to him, before he can speak himself? After the conversation is finished and has been written down the child reads the story. "Reading" not in its strict sense, the child remembers the situation, especially if a few drawings illustrate it. He "reads" what he already knows. This is what we mean by "ideo-visual reading". The idea is already in your mind when you perceive the words.

At first it is enough when the child adds through writing a few words to the conversation (his name, a letter to a familiar word m.ma) later on it is our purpose that a form of written conversation is established in which the child writes complete sentences. This method is not new at all, as early as 1882 Alexander Graham Bell reports his success with Georg in the "American Annals of the Deaf". This sort of conversation leads to the most important goal of teaching our children to READ a book, paper or magazine. Reading, however, is an underdeveloped area in the instruction of deaf and deaf-blind pupils. In studies on a deaf child's achievement one measures his command of expressive language (speech, construction of sentences) and his ability to lipread. Reading has received too little attention in the schools for the deaf. This is surprising, since it is THE medium for a deaf and especially for a deaf-blind person to escape from a permanent backwardness in language. When a deaf person with normal learning capacities is unable to read a magazine or a novel at the end of his schooling career one might say that his education has failed. It is true that many children can read something from a text they pick up a few familiar words. When their parents write a letter about an event already known to them, they find out what is meant, but all this is very close to what above is called ideo-visual reading, the child relies on his vocabulary. He does not understand the system of language, a level which is reached normally in the 4th grade of the elementary school. You may be shocked to hear that only 6% of the congenital deaf students in the age-range of 15:6-16:6 who participated in the research of Wrightstone, Aronow and Moskowitz (1962) reached this level in the "Metropolitan Elementary Reading Test". You find slightly more optimistic results with McClure (1966), although he considers 30 percent of the deaf children in the U.S. as functionally illiterate! The rubella deaf children in these studies receive the lowest qualifications.

Completely pessimistic is Brill's opinion, he says that there is little chance of a deaf child with no additional handicap whose I.Q. is below 118 reaching fifth grade level (Brill 1962).

Fortunately we have reading results (Uden 1970) with a Dutch reading test (Brus-Bakker) which show that many more children with a performance I.Q. of 100 and higher can reach the level of structural reading. Our results indicate that 60% of our youngsters in the age range of 13:6-18:6 have reached this level, but unfortunately they also indicate that 22% of the normal intelligent children of the same age group only reached the vocabulary stage. It is not an irrelevant conclusion to assume that this group consists mainly of children described above as "dysphasic".

A deaf-blind child with good educable possibilities can only reach the stage of true reading if careful attention is given to graphical conversation, c.q. ideo-visual reading in the first 5 years of schooling (from 4 until 9), if the following two years are spent transferring these "self-made-stories", at the age of 11 the child can get his first book. Not a book with special "deaf" language, not a book with too many pictures, just a book normal children read at the end of the first grade. I see a lot of problems in reaching such a high academic level with these children. It can be done if during the hours the child is awake, in school, after school hours and at home with the parents everything that is said in conversation is written down. All these scratches of paper should be carefully collected and if necessary explained by the teacher and kept for reference in the child's story book. I believe surprising results will be our reward, if not . . . gestures are demolishing everything again. In case large print has to be replaced for braille, I see extra problems in the procedure of the graphical conversation (see Lowenfeld, Abel and Hatlen 1969), however these problems are not always essential.

Fingerspelling

I would like to say a few words about fingerspelling with deaf-blind children. Together with the graphical conversation I consider fingerspelling the deaf-blind child's most appropriate conversation and instruction method. I make a clear distinction between conversation and instruction on purpose. A deaf-blind child who has reached the level of academic learning should not get his instruction by means of the Tadoma method. There are too many disadvantages in this system: the speed is fairly slow, hygienic and emotional problems arise when this method has to be used with older children. For teaching the older children we prefer "The American one hand manual alphabet." In this technique the child puts his elbow on the desk, with his lower arm in a vertical position; he forms his hand in such a way that he can feel almost completely the addressor's finger movements.

For the children who are in an early stage of development, I see great advantages in applying the Tadoma method, but as I stated earlier it is too hard for the child to express himself by using speech. In order to get response, which is needed very badly for getting the conversation going, in most instances you need fingerspelling. I will not enter into the discussion whether fingerspelling or speech gives the deaf and deaf-blind child the best possibilities for his development. As long as teaching language is so differently done in the schools for the deaf and deaf-blind, comparing results of education with the method of communication as a discriminative factor, has little sense. I repeat: when "home-made-language" is invented by the children, you are lost. Then neither fingerspelling, nor sign language, nor speech will have much chance of becoming the child's mother tongue.

When fingerspelling is applied (for the deeply mental defective deaf-blind child we use gestures derived from the Dutch system of sign language) (van Beek). We have made a few additions which might interest you.

In the first part of this paper I have emphasized how important rhythm is for remembering sequences. Normally when you use fingerspelling the child sees a continuing stream of movements, or when spelled in the hand-palm he feels a continuing stream of tactile impressions. We have found it is possible to transmit our rhythm we use when speaking in the fingerspelling. You have to make the same pauses as you do when speaking. Example:

John / have you any idea / who is coming to dinner? /

The second rule is, if the word accent is on a vowel a pause is made after you have spelled the vowel. Examples: pota/to, o/rator, enga/gement etc.

If the accent is on a consonant you make a pause after the consonant giving a little extra pressure on the consonant, e.g. trum/pet, the "m" gets the extra push, or if spelled in the air you wait a second after the "m".

When the vowel is long, you make a small horizontal movement in the hand: speech-clinic etc. It is surprising to see how this transformation of our speech-rhythm into tactile or visual signals improves the perception of fingerspelling. Further it helps the child to remember the sentence better and if he can talk he will speak more rhythmically. We have noticed very clearly a transfer from rhythmic spelling into rhythmic speech. You will experience this yourself by doing the following experiment: Spell a word or sentence into the child's hand (or in the air). Follow this procedure:

1. Without any groupings of the sentence in word-groups, you just produce a stream of movements. Ask the child to repeat the sentence by using fingerspelling and afterwards ask him to speak.
2. Follow the same procedure but apply the rules I have given for rhythmic spelling. Ask the child again to repeat the sentence and listen how the quality of the speech is now.
3. Again the same procedure, but allow the child after he has received the tactual signals to repeat the sentence by spelling to himself; if the child is blind he is allowed to spell with one hand into the other, if he has sufficient sight encourage him to watch his own fingers. You will notice that in this last-mentioned method the results are much better.

He remembers what was said to him better and his speech is better. This result can be predicted, because this way of teaching is in correspondence with an important principle of learning, which says that one perceives better when one's own activity is fed back; these may be the self-originated sounds or as in this case the tactile impressions in the hand.

This has its consequences for teaching fingerspelling and also for the Tadoma method. The child must be given the opportunity to feel his own movements again.

Kinetic Therapy

In the previous part of this paper I have brought forward the fact that most of the deaf children are backward in their rhythmic development. I emphasized the assumption that rhythm and short-term memory are very closely linked. It is clear that STM plays an important role in acquiring smooth language. Rhythmic training in general is crucial in the deaf and deaf-blind development. It is obvious that such a training has to be integrated into sound perception. The modern acoustical equipment has made it possible for even the deafest child to profit from it. It is a sad fact that after years of good results in dance and rhythm education at our Institute so little is done at other places.[1]

Our program however has to be refined since the child described as "dyspractic" did not profit enough from it. We are developing a program which has characteristics of the general music and dance program, but also contains elements of programs carried out in physio-therapy. The work of Kephart (1960), Bush and Taylor (1969), Valett (1967) and McKeene (1966) in the U.S.A. has given us insight to how the development of gross motor control, body image, visual imagery can contribute to the child's language acquisition.

All these programs lack one essential aspect: they pay too little attention to rhythm and the memory for serial data. In these programs the relationship between movement and language is not always clear to the child. Exercises are executed many times first by the teacher and afterwards the child has to imitate them. We prefer the approach in which language is used before or while carrying out the exercises. You say to the child or write down: "John, *first* you throw the ball in the basket, *then* you jump over the bench and *finally* you run back to me." With younger children or pupils who have tremendous difficulties in learning language, the series of movements can be explained by using visual or tactual symbols, like the ones a choreographer uses. We got very good results by allowing the child to 'jump' a sentence or a word, e.g. "My father is a carpenter". The child is asked first to divide the words into syllables, then he is asked which word gets the accent, let us assume it is "carpenter", then the sentence is beaten on a drum: my fa/ther is a car/pen/ter. While beating he has to talk at the same time. If the articulation is too poor, he is allowed to say:

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[1] A film on "The sound perception method" of the Institute for the Deaf, St. Michielsgestel, Netherlands, is produced by the Department of Medical and Public Affairs, George Washington University Medical Center, Washington, D.C.

ba baa ba/ ba ba baa ba ba
my fa ther is a car pen ter

Then the sentence is clapped in the hands or for each syllable he has to make a jump, of course the highest jump for those which have the accent.

One boy extended his memory from 7 syllables to about 25 by using this method in three months. When he has to recall a sentence which was learned previously, he tapped first the rhythmic pattern on his desk and then the words gradually came back.

The Use of the Video Tape Recorder

As a last important element in the therapy of language-disordered deaf and deaf-blind children, I would like to say a few words about the possibilities a video-recorder has to offer.

When it is used in the classroom with children one often thinks of showing objects and events to them. I think if the cassette recorder is used more extensively deaf children can profit enormously from it. We hope to use the video-recorder with our slow learning deaf youngsters, who will never attain the level of structural reading in order to develop ideo-visual reading furthermore. You can do this by taping, e.g. the news, showing it a few times to the children and handing them the paper the next day. They can read now the events of the previous night, that is to say they read what they already know. By doing so we hope to extend the children's vocabulary considerably.

Although for these purposes it is worthwhile to buy a video-recorder we see its use for dysphasic children on a somewhat wider basis. I stated earlier in this paper that feed-back process plays an important role in our perception. Our research department found out (Uden 1970) that when the child is given the opportunity to read his own lips the improvement of lipreading is significantly better, than when he is not allowed to do so.

We applied this procedure during 18 months in a class of four dysphasic deaf children. We did as follows with mistakes in the articulation: Suppose in the conversation the child keeps saying: "I went to A*p*sterdam", instead of A*m*sterdam. You tape this sentence, show it to the child and indicate his mistake and correct it. We found that the child was much more aware of his mistake after he had seen himself on the screen. Consequently the will not to repeat it again was much stronger. After the wrong pronunciation had been corrected, his own right response was shown again and reinforced, e.g. by flashing a green light adjusted on top of the apparatus.

The way in which this correction is carried out is important too. As we know from the psychology of learning the effect of learning is much better if one corrects one's own mistake, than in the case of imitation of the proper response. You can help the child to find the good pronunciation by using the telephone alphabet. You say to the child in "Amsterdam" you use "Peter", it should be "Mary", correct it yourself now. When the child is older, you just say: don't use an "explosive" but a "nasal".

I elaborated on the weak side of these children: temporal sequences. By taping a series of movements and allowing the child to watch them a few times, we have had striking results (Gerits 1971, van Dijk 1971). Using the video-recorder has another benefit, that is you can eliminate the background stimuli. With a zoom lens you only project the child's face on the screen, distracting stimuli are eliminated in this way. As you know many remedial programs for the brain-injured child emphasize this sort of stimuli reduction (Strauss and Lethinen 1947, Cruickshank 1961).

Last but not least the video-tape recording enables the child with very poor sight to develop lipreading at close distance and to watch his own speech or other movements such as fingerspelling.

Final Word

In this paper I have not confined myself to a specific topic. I have summarized the insights we have gained in the last few years in the diagnosis and education of deaf and deaf-blind children with specific learning problems. Some things may be new to you, others may not. I do hope however that this talk has given you a few ideas to help the educable children in a better way. It is my opinion that we have to be very modest in judging our methods, because so far our results are rather poor indeed, despite the enthusiastic work of many fine men and women around the world, despite the energy of thousands of children. Together we have to seek better ways. Let us start now; too many children have already waited too long!!

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Poh-Lin and her teacher Mr. Leo Queenan using the vibration method of speech at Perkins.

THE TEACHING OF A MANUAL-SIGN AS A DIAGNOSTIC TOOL WITH DEAF-BLIND CHILDREN

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Introduction

The literature pertaining to the diagnostic sub-categories of exceptionality in children (i.e. mental retardation, cerebral palsy, autism, congenital aphasia, schizophrenia, the congenital-rubella child, and deaf-blind) suggests that these categories are in some ways artificial and over-simplified, with each encompassing a variety of etiological factors, differences in severity of deviation, differences in performance and prognosis, and with over-lap between categories in conglomerates of "distinguishing features". (Robinson and Robinson, 1970; Bender, 1971; DeMyer, 1971; Curtis and Donlon, 1969; Robbins and Stenquist, 1967; Eisenson, 1968.) Special methods of treatment have been proposed for each sub-category, but since the definition of each sub-category is imprecise, permitting differing concurrent diagnoses of any one child, the effectiveness of method is highly variable and there is a tendency to apply a method, medication, publicized technique or prognosis, which was declared successful or "true" with one child in a particular sub-category to all children in that particular category although careful descriptive evaluation would reveal obvious differences in behaviour among them. Success of treatment is probably more often a result of physical growth implying increased neurological organization and of teacher determination, intuition and perseverance rather than "prescription" based on description. Interest in quest for "prescription" arises when a child doesn't learn and is most frequently found with reference to limited progress in communication. Presumably greater precision regarding description of the behaviour of deaf-blind children with particular attention to individual variability—in spontaneous activity and during the process of learning and of communicating—will lead to innovations in management and instruction or at least to more confident and effective choice of stimulation type or remediation now available.

Curtis and Donlon (1969), as a result of a study of 100 evaluations of deaf-blind children in their interdisciplinary evaluation program at Syracuse, have documented the need for new evaluation techniques based on more standardized observational procedures and on better isolation of criteria for situations, test objects, examining individuals, and test environments. A general plan for improved standardization was proposed, suggesting eleven situations to be recorded on video tape with approximately five minutes per situation. These situations described primarily persons involved (mother vs. stranger; authoritarian adult vs. permissive adult, etc.) and physical situation (a casual home environment; child with sensory aids on; free play with a wide variety of toys; etc.) and could fluctuate widely from child to child. Rating protocols were not presented but a sample type was suggested for communication which utilized sensory categories as a base rather than level of or style of coping.

The proposed use of video and of attempts at standardization of observational procedures and method of rating performance is well taken. Our own attempts in this direction recognized the following requisites:

1. Test situations should permit participation by any young child, including totally blind, hearing-impaired children.
2. Therefore the situations should be based on some type of event with motivation for a rather wide span of cognitive levels.
3. The situations should utilize a set of materials and a set of procedures which can be standardized and which permit every child's participation according to his present development level or according to his current, available repertoire of behaviour.
4. Rating scales then would be based on a "genetic method", which recognizes that children of different ages use different response patterns in the same circumstances, as a result of differing neural organization in part.
5. The test situations should assess behaviour which matters to habilitation. Therefore, choice of situations should be based on a theoretical model which relates easily to habilitation, to the process of human development and particularly to socialized behaviour and learning.
6. Because of the latter, test situations are an important supplement to test items which sample end performance only.

The end performance is informative but the behaviour or method of coping during the learning process will be equally instructive for habilitation planning.

7. Description should be based on rating scales of readily observable behaviour; use of categorical terms would be best relegated to summary statements when needed in order to point toward general remedial approach.

For several years, in an attempt to approach the above conditions, we have used three situations in evaluation, in addition to general observational techniques in various situations, parent interview, and presentation of selected items from standardized tests and developmental schedules for normal, retarded, deaf and blind populations:

1. *Determination of Sense of Causality*, through evaluation of the child's request or lack of request for repetition of the adult's winding-up of a mechanical toy with a removable key. Rating of response was based on interpolations from Piaget's delineation of levels of sensori-motor development. (Piaget, 1957; Flavell, 1963; Wolff, 1960.)
2. *Evaluation of Sense of Object Concept* (not object permanence), through rating of the child's behaviour with a set of toys presented for the child's rejection, inspection, manipulation, experimentation and/or comment. The set of toys was selected so that releasers would be present for all levels of behaviour toward objects from 4 months to 24 months. Rating was based on theories of Werner (1961) and Piaget (1951). A willing-to-respond adult is present in this situation and will gladly respond in play if invited by the child; however, use of objects is entirely child-directed and therefore frequently at a lower level of performance than that seen on other tasks involving a problem to solve. Recently, I discovered an article by Woodward (1959) which describes a similar, but not identical, presentation using Piaget's levels of sensori-motor development to classify the sensori-motor activity of institutionalized "idiots". She employed the classification system on the theory that the finger-twiddling, object banging, and paper tearing were not "meaningless" behaviour but were characteristically normal sensori-motor activities displaced in chronological age. Woodward noted a similar discrepancy to ours between self-moti-

vated occupation and a somewhat higher level of response on presented problem-situations. She commented that the self-activity of the retardate has nothing but its own reward whereas the presence of the examiner lends new possibilities. Uzgiris (1967) has also designed a toy test based on Piaget's theory of sensori-motor development; use of the test with normal children has shown the anticipated sequence of patterns of approach to objects as becoming more differentiated in type, more specific to nature of object and more socialized.

3. *Response to Teaching of a Manual-Sign:* In this situation, an evaluation is made of the child's response to an arbitrary, associated movement (manual-sign) made by a communicating adult and embedded in a situation culminating with a primitive reinforcer (movement, visual sensation, or food) which is at first readily available, secondly contingent upon a particular sequence of behaviour, and thirdly contingent upon the use of the sign by the child to request the not-present reinforcer. Although interest in use of gestures in the education of deaf-blind children mainly at a level of signals is high (Southwell, 1968; Van Dijk, 1964; Guldager, 1965; Welch, 1971; Robbins and Stenquist, 1967), no attempt to build a formal test situation using an instructional approach and a rating scale is known to me.
4. *Receptive and Expressive Symbolic Gesture:* Our intention was to also formalize a test using well-known everyday objects—comb, cup, spoon, hat, and sun-glasses—which were examined by the child, then requested one-by-one by a gesture from the teacher, then "named" by gesture by the child. This test would be a step between the 24-month level (end of sensori-motor period and the 4th year baseline in Kaplan's Test); in other words a 24-month level on the object-concept test is prerequisite to performance on this gestural test. However, our recent population has been very young-in-gesture; in only two or three cases out of perhaps fifty has this level of communication been appropriate. To my knowledge little research has been done in building tests for deaf children using rating scales for non-verbal communication. All developmental schedules include reference to some early milestones—smiling, anticipating movement, pointing, and such (Gesell, 1940; Illingworth, 1963; Doll, 1953). However, the items are limited. The Parsons Language Sample (Spradlin,

963) includes some hand material and the ITPA (McCarthy and Kirk, 1961) has a sub-test using gestural representation which includes related material. Both of these have been advocated for use in sampling the non-verbal ability of deaf children.

The four situations were chosen because each sampled an important aspect of the language act: (1) the child must have formed a concept before he can learn to use a symbol to refer to it, which is sampled in the test of object-concept; this would necessarily be a "socialized" (Uzgiris) concept which assigns a specific action to specific objects (emergent at 12 months but not matured until 18 months): (2) the child must recognize both himself and another person as capable of acting to cause an event before he can relate to symbolic language (about 12 months); he must share an idea with another person (14 months) before he can share a symbol for the idea; the test of causality samples this development; (3) the child, prior to language, is able to notice and relate to a movement (speech, gesture, fingerspelling) as interesting in itself when in competition with object or object-action motivation; his ability to notice is based, in part, on his recognition of basic, communication cues (smiles, posture, inflection; timing, changes in facial expression) as enticing and so leads him to imitate. The sign-test provides an opportunity to sample his communication awareness, the range of his receptive and expressive communication repertoire, and his ability to perceive and to relate to a request for change of communication behaviour in a situation in which he is motivated to learn; and (4) the ability to symbolize is presumably a prerequisite to normal language acquisition and can be sampled via gesture. Performance at this level is commensurate with emergent language acquisition.

Relationships Between Cognition and Language Acquisition

The preceding sketch implies some relationship between cognition or general intelligence and language acquisition. Bruner calls the relationship an "intimate" one, implying interdependency but separateness The nature of the relationship is an important question since inter-relatedness might imply a certain contingency which would affect prognosis and remedial methods.

In normal development within certain limited deviations, certain functions do emerge simultaneously, suggesting some relationship between levels of cognition, gross motor functions, and language milestones. For example, the following relationship between motor functions and language is said by Lenneberg (1969) to be usual:

Age	*Motor Functions*	*Language Functions*
.5	Sits supported with hands.	—Cooing to babbling including consonants.
1	Stands; walks when held with one hand; uses pointing to communicate.	—Syllabic reduplication. —Signs of understanding some words. First words (dada).
1.5	Prehension and release fully developed. Propulsive gait. Creeps downstairs.	—3 to 50 words. Jargon. Good progress in understanding.
2	Runs (with falls). Walks stairs; no alternation.	—More than 50 words. Two-word phrases. No babbling. More interest in verbal communication.
2.5	Jumps 2 feet. Stands on one foot for one second. Builds tower of 6 cubes.	—Learns new words every day. Utterances have three or more words. "Understands almost everything said to him".
3	Tip-toes 3 yards. Upstairs, alternating feet. Jumps 2.5 feet.	—1000 words. 80% intelligibility. Grammar is like colloquial adult.
4.5	Jumps over rope. Hops on one foot. Walks on line.	—Language well-established.
Early Teens		—Propensity for language acquisition (not for vocabulary increase) decreases.

The positive correlation between motor functions, i.e. physical growth, and language development is borne out, according to Lenneberg by the progress of language development in retarded children in which correlation is not with C.A. but with motor development, i.e. physical growth. He adds that this correlation does *not* imply a causal relationship, as is apparent when one considers the language acquisition of athetoid, thalidomide and some severely crippled children. Similarly, coincident with levels of language emergence are certain functions of cognitive development (Piaget levels with additions):

I.	0-1 mo.	Extension of reflex activity. Adaptation occurs on a level of motor activity.	Cries.

II.	1-4 mo.	Repetition of simple behaviour patterns: —Looking and grasping attempt. —Looking toward sound. —Waving hands, examining fingers, waving fingers.	Cooing.
III.	4-8 mo.	Actions repeated: looking at, tasting, hitting at, shaking, banging: repeats actions accidentally noticed.	Babbling, including consonants.
IV.	8-12 mo.	Sense of object permanence emergent. Demonstrates anticipatory behaviour. Emergent imagery. Examines objects; finds out what is new about it; turns to examine.	Re-duplication of syllables. Signs of understanding some words. "Da-da" w/pointing.
V.	12-18 mo.	Experiments: spins and rolls; bangs on different surfaces; drops from different heights.	Jargon. 3-50 words. Good understanding.
VI.	18-24 mo.	Solves simple, "new" problems by "sensori-motor intelligence".	Combines words.

The language behaviour of retardates, in general, does show a positive correlation between cognitive development and language development; however, an overall delay in onset of the milestones is characteristic. Doll (1953) compared the age of emergence of language milestones in normal and retarded individuals; using chronological age of the normal children and social age (a measure of cognitive development) of the retardates (with the retardates being older than the normals by an average of 14 years) showed the following.

		Median Age of Onset	
Vineland Scale Item	*Description*	*Normal (C.A.)*	*Retardates (S.A.)*
1	"Cries"; laughs.	.17 yrs.	.24 yrs.
10	"Talks"; makes sound.	.59 yrs.	1.39 yrs.
17	Follows simple instructions.	.95 yrs.	1.11 yrs.
31	Uses name of familiar object.	1.79 yrs.	2.25 yrs.
34	Talks in short sentences.	1.96 yrs.	2.50 yrs.

The sequential reversal of items 10 and 17 for the retarded population is of interest since a similar reversal is seen in the development of a hard-of-hearing sub-group of the deaf-blind congenital rubella population. A deficiency in the "productivity" or freely initiated, pre-verbal linguistic "play" in the behaviour of retardates is not surprising and probably implies language learning by them which is based more on building of responses to repeatedly heard language sequences than to an active, inferential language development built on an interaction of an active child's attempts to match to environmental models.

A cognitive level of about 12 months appears to be necessary for the emergence of initial language understanding, and naming occurs only after the sensori-motor phase is past (2 years +). Lenneberg (1967a; 1969) states that minimal acquisition of grammar is possible with an I.Q. of 50, so that at age 4 years the child's mental age is 2 years; ". . . (with an I.Q. of 50 at 4 years) . . . one may safely predict some small progress in language development. Rate of development will gradually slow down and stop in the early teens." (Lenneberg, 1969 [illegible] Robinson and Robinson make these distinctions with relat[illegible] [illegible]elates of cognitive ability and language competency:

I.Q. 36-51:	definite impairment of verbal, motor and social behaviour; acquisition of speech but poor grammar.
I.Q. 20-35:	communication on a concrete level only; no acquisition of grammar.
Less than 20:	maybe some phrases.

Lenneberg notes that with an M.A. of 30-36 months, a retarded child usually has some small vocabulary; with an M.A. of 5 years, there is "no effect on essential principles of speech production or language comprehension even though content of communication will be restricted". In Woodward's study of cognitive development of 65 retardates between 7 and 16 years who were at a sensori-motor level of development, 56 had no verbal comprehension, 1 used word combinations reasonably well, and 5 were echolalic. Basal age on the Merrill-Palmer was at about 2 years.

The generalizations concerning language acquisition in retardates suggest some relationship between cognitive functions and language acquisition functions. However, with limited cognitive ability for such tasks as mathematics, language, a seemingly more complicated task, can be acquired; particular, innate tendencies for language acquisition apart from cognition are suggested. This is supported by the behaviour of "aphasic children", who by definition have reasonably intact cognitive processes although oral language development is delayed, and by autistic children some of whom are characterized by particular "super-abilities" and absence of the basic, non-verbal, affective communication functions with or without emergent oral language.

In summary, language acquisition ability appears to include some components which are not part of cognitive development (McNeill, 1970; Lenneberg, 1969)—hence, language acquisition can be disrupted apart from or in addition to the presence of mental retardation. Given very severe to profound mental retardation without special "splinter-skills", language acquisition also is always affected. To attempt to differentiate between mentally retarded deaf-blind children who have reasonably normal language acquisition ability and those who lack components of behaviour necessary to language acquisition seems important. Children with innate language ability, though retarded, can learn by natural processes—exposure to a corpus, attempts at imitation and closer approximation, "inferring of rules" by conversational exchange, etc. But there are also "deviant" routes to at least pseudo-language acquisition; differentiation of the sub-groups in the more than mildly retarded population may clarify these. One route may involve a much more "intellectual", programmed rather than "natural" approach to language and consequently have a later onset while waiting for emergence of a higher cognitive level in certain splinter-behaviours, such as visual patterning. The behaviour in the sign-test situation might help to discriminate these differences.

Sign-Test Procedure

In attempting to design a standard situation, the variability in motivational level of the children was considered, and several sources of reinforcement chosen: a ride in a cart, a swing, the action of a wind-up toy, or food. The present test situation prefers the cart ride or the swing.

Similar difficulty arose in choosing one sign to be used by all the children. The motor ability of the children varied; and we wanted a sign which could be made by all of the children and which was clearly distinguishable from other random movements. After trying several, more natural gestures, we settled on a handclap, in contradiction to Werner and Kaplan's theory (1963), Tervoort (1961) and Van Dijk (1964) that symbolization is generated from a progressive differentiation of the child's action with the object and that, therefore, natural gestures should be utilized because of their physiognomic similarity to the referent and the consequent ease of differentiation. There is opinion contradictory to the Wernerian theory of development of symbols. An excellent summary of the research and hypotheses regarding the mechanisms or processes possibly involved in language development is reviewed by MacNeill (1970); he comments that the theory of Werner and Kaplan has no proof in actual research, and suggests that although their contention is that symbolism is a "weak universal" (learned behaviour engaged in by all human beings in every culture), it is equally conceivable that it is a "strong universal", that is, innate behaviour. Assuming the latter, we used the arbitrary sign (hand-clap) in the belief that true linguistic potential includes the ability to utilize an imitated arbitrary sign (Bruner), and that response to words is first of an associational, signal nature and later becomes symbolic (Furth, 1966). From the point of view of gross motor development, a hand-clap can be well imitated by normal children of 10 to 12 month C.A. (Gessell, 1940) and can be approximated by younger children.

Our teaching sequence in the sign-test evolved to the following:

a. Initial rating of the child's own way of requesting repetition of the event, based on the theory that spontaneous expressive behaviour is an indicator of the level of neural organization or disorganization of the child and of his ability to "think".
b. A series of trials in which the sign was introduced preceding the pleasurable event, providing opportunity for imitation of a visually received model; a delay was introduced before the reinforcer and adult facial expression, speech, and postural-gestural communication used to urge imitation. Response was recorded (see Rating Form, Table 1). Obviously this step does not apply to totally-blind, deaf children.
c. If imitation was not forthcoming after a number of trials, motor instruction in sign production was undertaken and the child's response charted.
d. Once the sign was made by the child spontaneously, that is without the model to imitate and without adult prompting, a break in time was inserted to evaluate memory for the situation and the sign. Circumstances resulted in varying time blocks; ideally there were two: a break of several hours and an opportunity to present on the following day.
e. If memory for expressive signalling was forthcoming at level (d), the sign was then presented, after a break, in another

context to attempt to check its potential for symbolic valence through assessment of the child's recognition of it. Response to the sign was taken to suggest imagery and some generalization. Response to the sign in another context can be trained by practice and conditioning on a sensori-motor level; if training in this way, the behaviour then involves low level organizational ability and has no relationship to a symbolic valence.

f. If a latent ability to use symbols is present, several occurrences of positive response at level (e) should result in spontaneous use of the sign to the teacher to request the activity. This behaviour has been observed in some children. Deviant expressive use of the sign out of initial context also occurs; for example, the child makes the sign "to himself", not directed to the adult. The original rating scale is found in Table 1 and is presently considered inadequate.

TABLE 1

Original Rating Form for Sign-Test

Suggested Age Level for Reference re: Normal Development	*Behaviour*
? 36 mo.	—Uses to refer to toy not present.
24-36 mo.	—Anticipates toy from sign. —Deferred imitation in situation.
18-24 mo.	—Uses spontaneously in presence of object (no sign-model needed after "started"). —Imitates spontaneously with smile, posture of anticipation.
11-12 mo.	—Imitates spontaneously.
10 mo.	—Imitates vaguely with urging (gen. "push").
9 mo.	—Tries vaguely to imitate. —Pushes Examiner's hand to make sign.
8-10 mo.	—Takes E's hand to start the sign-sequence: E-together-with-child: ritualized. —Anticipates when sign made during session. —Tolerates sign-demonstration; but "places E's hand on object".
4- 8 mo.	—May watch sign briefly; but focus is on object. —Pushes hand away; general activity on object.
1- 4 mo.	—Pleasure in event happening. —No response.

Sign-Test: Impressionistic Results

1. In the diagnostic classroom "nature" (in this instance, teacher intuition gained through experience) took its course; the sign-test came to be used only with children who were either beyond a 12 month but below a 2 year mental age or who had behavioural symptoms of language disorders. In a sense, the very decision to use the test became diagnostic. The test was used in an attempt to assess the child's potential at the moment for improvement in communication level, so that appropriate recommendations for a communication-environment could be made.

2. Some very retarded children who could not imitate the sign by visually experiencing it could learn to do so if they were trained motorically. Two tendencies were seen, (a) one suggesting a low level of neural organization or general retardation, and (b) the other, a particular deficiency in components of behaviour related to social-communication. In the first instance, the quality of performance was infantile, including considerable random activity, evident pleasure in anticipation based on the clinician's behaviour, perhaps occasional correct approximations of the sign but an inability to sustain it, or attempts to imitate the sign without apparent anticipation. In the second instance, the sign was rigidly produced under routinized circumstances, highly predictable, and obviously pleasurable to the child but subject to ready disintegration with a change in positioning of the adult or in the sequence of events. Prior to the motor instruction, communication of "want" was minimal, hesitant, and characterized by a more lethargic behaviour. This latter behaviour seemed to be based on an inability to either understand the request for imitation during the visual presentation or to motorically imitate a visually received movement.

To imitate the visually received sign in this test situation involves recognition of the imitation-request, ability to isolate the "signal" in the situation, as important, and ability to reproduce it which involves a cross-modal performance. By motor instruction, we eliminate the need for cross-modal performance, take care of any problem in perceiving basic communication cues, accentuate the response-desired in the child's own behaviour, and clarify the stimulus-response-reinforcer sequence for him. The process becomes that of programming sequential movements in time, a training method, rather than learning based on self-initiated inference, an "educational method". The task is reduced to a lower level of sensori-motor organization and cognition, and is seemingly related in type to the learning behaviour of infants (neonates to 4 month olds) in experiments by Papousek and Lipsitt.

3. As is implied in the above, children varied in affective expression—in social smiling, eye-contact, use of vocalization, and such. Two sub-groups stood out: those whose affective communicative behaviour was approximately parallel to their general performance level (suggesting a general retardation of development) and those whose affective communication was even more impaired than their general performance, suggesting primary communication dysfunction.

An ethological approach to behaviour has shown evidence suggesting the presence of innate-action-patterns in the behaviour of neonates related not only to more obvious motor activity (rooting and sucking, or "walking" movements if body weight is supported) but to communication and social behaviour: smiling without social provocation (Wolff, in Hess), looking at eyes (Fantz; Papousek; Hess), vocalizing to express (Hess), the Moro reflex which is an initial component of clinging (Papousek), a tendency to be attracted to visual patterns (Fantz), a tendency to set-up or look for patterns or "rules" in environmental happenings if the situation is interesting or rewarding (Papousek), and a tendency to take notice of the situation (orienting or scanning) and search for new patterns if the formed rules do not match a changed environmental situation (Papousek), perhaps an inclination to imitate movement and human sound (Kavanaugh; Piaget). Evidence of these behaviours in infants implies the possibility of genetic coding of basic behaviours which are then available to the child for adaptation and elaboration in combination with the releasers provided by the attending environment. The role of environment in reinforcing or inhibiting social overtures is well-known. It is equally possible that the usual innate child behaviours are not in fact present or have been interfered with genetically at the level of fetal development in the same way that ears are abnormally low-set, a palate is high-arched, a fifth finger crooked, or Mongoloid features formed (Rosenthal, 1970; McClearn, 1970). If these affective components are absent and unavailable to the child in his repertoire in their normal social forms, the parent-child communication obviously would be disrupted, though development of other more intact functions might proceed; special educational methods to circumvent the deficiency would be appropriate—which the acquisition of spoken language by some "autistic", hearing, congenital rubella children has proven to be possible

4. The degree of random gross motor activity of the children differed, with two extremes—very high activity to lethargic behaviour. The direction (goal) of activity toward each end differed, being either self-aware or environmentally directed. Thus there were two obvious types: children with normal, though retarded, infantile behaviour including random activity designed to produce the reinforcement—similar to the infant behaviour in Papousek experiments; and those in whom the act of orienting and scanning seemed to be accompanied by over-mobilization of functions. In these cases, irregularity in control of autonomic responses was seen—in hyper-ventilation or flushing for example. And, if a solution was not available to the child, he might resort to even increased mobilization seen in biting, hitting, lip pursing, giggling, or to under-mobilization and avoidance—looking away or "falling asleep". (See Table 2 for a draft of a rating form for these responses during the learning process.)

We are referring to two functional levels which seem to be closely interrelated in behaviour and in neurological functioning—that of arousal or attention to the problem and that of nature of accompanying behaviours to the orienting or problem-solving behaviour. These latter behaviours are generally thought of as components of personality or of temperament. The research of Stella Chess (1967) is apropos and her schema for assessing temperament may be most effective. Chess implies that temperamental characteristics seen in a child's mode of response to new situations may have innate bases; she describes possible difficulties arising when the child's temperament is at odds with the parent's, or caretaker's, resulting in a communication-breakdown.

In addition to the effects of differing characteristic ways of responding, we have observed seriously injured children whose evident arousal, attentional and evident autonomic control is little affected by the changing circumstances. Presumably if one charts progress in learning, or absence of progress, in combination with these peripheral responses differing profiles will be found. Most significant or serious pathology would be evident in characteristic behaviours at the extremes of our rating scale, in perseverance of emotional response, or in emotional behaviour relatively unrelated to environmental circumstances.

TABLE 2

Rating of Course of Peripheral, Behavioural Measurements
Observed During Problem-Solving on Sign-Test

Pathological aggression:
- Biting-self.
- Head-banging.
  - —Biting other.
  - —Hitting other.
  - —Pinching other.

Irregular ANS mobilization:
- Hyper-ventilate.
- Hyper-active.
- Constant vocalization.
- Bizarre vocalization.
- Tantrum:—crying uncontrollably.
  - —screaming.

Regular, lower-level concomitants of problem-solving:
- Fussy.
- Irritable.
- Random motor activity.
- Discontented vocalization.
- Fretful facial expression.

Higher level concomitants of problem-solving:
- —person-contact: commun.
- —"environmental" scanning.
- —mental "consideration" with a consequent decision.

Normal problem-solved behaviour:
- Calm.
- Quiet motorically.
- Pleasant vocalization.
- Happy facial expression.
- Smiling.

Neutral; indifferent.

Pathological avoidance:
- Leave scene.
- "Gaze away."
- Passive; seemingly asleep: "switching-off".

Rosenthal (1970) describes the human brain as having three levels of functions or behavioural organization and control:

1. the first level mediates sleep, wakefulness, alertness and arousal, controls respiration and circulation, and permits reflexive types of responses.
2. the second level (including the limbic system) mediates behaviour having to do with survival and reproduction—chewing, salivation, retching, searching, fighting, self-defense, expression and states conducive to sociability; at this level the feelings associated with threats are mediated—anger, fear, wanting to be alone, and so on.
3. and, the third level, the functional neo-cortex permits language, logical thinking, conceptualizing, flexibility in behaviour, making choices and so on.

Dysfunction at lower levels of control, perhaps due to insult to the fetus during the first two months which is a period of major development for these sub-cortical functions (Tanner, 1970), interferes with organization and response at higher levels. Such interference with neural organization results in different behaviour from that characterized by a slowing of rate of development found in a sub-group of retarded children.

Summary Statements

Normally and in Mongoloid children there is a predictable relationship between milestones in language, cognitive, and motor development. Mongoloids with measured I.Q. of 50 can acquire language with fair grammatical competence but the rate of acquisition is much slower than normal. They are able to accomplish this feat of inference making with considerably limited ability to solve other types of problems, mathematical ones for example, and often with no special instruction, suggesting the existence of something "special" to language acquisition (Lenneberg, 1969).

If we were to apply this model of relationship of retardation, cognition and gross motor development to deaf-blind children, we should then be able to predict level of communication and/or language learning participation possible at a given time for a child by evaluating his physical and cognitive development. This is not always the case. There are prerequisite cognitive levels for certain stages of language; however, attainment of the cognitive or motor level does not necessarily assure the language development. If, in addition to cognitive adequacy, the basic components related to language acquisition are present (smiling, looking at, smiling at, reaching toward, vocalization to express, interest in visual or auditory pattern, scanning for communication cues, imitating) and if physiological mobilization of bodily systems toward the communication or language learning event is reasonably well regulated—by medication, external situation control or internal adequacy of systems involved—language acquisition may take place with a general "naturalness" and the help of sensory aids and teacher-communication. Without the innate components, language acquisition seems to take a different route in a process which might be described as more like the "intellectual" process in learning to read than the totally unconscious process of learning to speak. In this deviant process, some assets must be available, for example, attention, imagery, and an ability to deal with visual configurations. Uncontrolled over- or under-mobilization, particularly the latter, can completely eliminate the possibility for communication development.

Observation of an array of deaf-blind children suggests that in addition to differences in rate of cognitive development, they vary in innate communication competence, and in adequacy of the bodily systems to initiate and/or maintain a state of attention and of problem-solving. This behaviour can be arranged on a continuum of severity composed of a designated set of parameters relating to neural organization, and to general levels of response-type. The sign-test provides one situation in which the presence or absence of "innate" communicative behaviours can be assessed along with quality of adaptability or learning when presented with a problem to solve in somewhat standardized as well as motivating circumstances.

The following measures, observable on the sign-test, are relatable to degree of severity according to rating scales:

a. The attention of the child, as seen in the changing course of orienting and scanning.

b. The level of mobilization, rating of over or under mobilization as seen in heightened emotionability, hyper-ventilation or "switching-off".

c. Spontaneous communication level with separate rating of gestural, vocal, and affective, "innate" responses such as smiling and eye-contact.

d. Course of learning with visual presentation of sign.

e. Course of learning with motor-demonstrations of sign.

f. Memory for situation and/or sign.

g. Response to sign out-of-context.

Record of the sign-test on video tape would permit review to rate on the several scales.

The sign-test is in its simplest presentation a very simple situation in which a hand-clap can be learned through training as a signal to produce a pleasurable event with a rather low level of sensori-motor development; such learning suggests potential for training. Evidence of other characteristic behaviours are more advantageous to language development: for example, environmental scanning, interest in problem-solving, ability to receive the non-verbal communication cues in the situation, evidence of learning, pleasure in learning, and, hopefully, response out-of-context.

TABLE 3

Tentative Rating Scale for
Spontaneous Commun. Type (P-S)

			Soc.-Comm. Components		
	Gestural	*Vocal*	*Eye-Contact*	*Scanning*	*Smiling*
24-36 mo.	Natural gesture used. Elaborated pointing.				Smiles at person as "commentary" or meeting.
18-24 mo.	Signs "come" and readies self.	Verbal request. Jargon.	Eye-contact & facial scanning for comm. cues.		
10-18 mo.	Readies self, expectantly & makes eye-contact. Pulls A's hand toward cart and readies self. Reaches toward A. Gets out of swing to bring A to it.	Vocalizes sharply.			
8-12 mo.	Pushes A's hand when it is placed on cart. Hesitant movements toward adult; disorganized. Anticipates by adult posture.	Laughs. Pleasant babbles. Screams.	Stares at eyes.	Scans general environment.	Smiles in anticipation, based on adult positioning as cue.
4- 8 mo.	Vigorous movement.	Annoyed voc. Coos.	Gen. visual awareness of body of person.		Smiles during reinforcement.
1- 4 mo.		Cries.			
———	No communication.		No evident attention to A.		

TABLE 4

Tentative Rating Scale:
Visual Sign Presentation

	Sensori-Motor Patterning	*Evidence of Generalization or "Active" Problem Solving*
Spontaneous Use:		
24-36 mo.		—Uses sign out of context to request ride.
Recognition Out-of-Context:		
18-24 mo.	—Less dependence on sequence but still rigid—lacking affect.	—Spontaneously makes sign when sees adult. —Goes directly to referent situation in response to sign in another context. —Makes sign out-of-context as if "talking to self". —? Recognition of sign out-of-context as familiar.
Behaviour in Original Context:		
12-18 mo.	—Makes sign as part of total sequence pattern:—rigid. —Pushes A's hand to make sign.	—Imitates spontaneously with certainty and clarity and evidence of pleasure or expectation. —Scans for clues re why own comm. attempt does not work.
8-12 mo.	—Readies self at sign. —Compulsively attempts to reproduce sequence—including imitation. —Echolalic: imitates sign—no anticipatory evidence. —Quality of imitation: clear, organized. —Responds to gen. sequence of actions in situation: no sign imitation. —Imitates, with "push" from A by forcing sign into foreground of attention. —Qual. of imitation: disorganized.	—Tries movement which worked in another situation.
4- 8 mo.	—Notices sign but focuses on own activity to produce reinforcement.	—Actively tries several general movement patterns which occurred prior to reinforcement.
1- 4 mo.	—Pleasure in event happening.	—General activity. —Orients.
————	—No apparent attempt to produce event.	

TABLE 5

Tentative Draft:
Rating Scale for Performance
on Sign-Test Following Motor-Patterning

	Sensori-Motor Patterning	*Indication of Generalization and Interest in "Problem-Solving"*
Spontaneous Use: 24 mo.	—Uses sign to A to request activity after taught to do so.	—Uses sign to A to request activity; no training trials. —Anticipating response on first trial out-of-context.
Recognition Out-of-Context: 18-24 mo.	—Uses sign to self in classroom. —Sign signals to go to the situation—with uncertainty or hesitancy.	
In-Context Behaviour: 12-18 mo.	—Rigid motor-sequence including signal by child: "robotized", rigid temporal organization.	—Makes signal without prompting and with anticipatory affect; evident pleasure in sign-making.
8-12 mo.	—Anticipates when sign is made; no imitation. —Imitation: clear, well organized. —Makes sign spontaneously in imitation; no evidence of anticipation	—Makes sign with minimal prompting.
4- 8 mo.	—Imitation is disorganized. —Will clap own hands with rigid tactual prompting. —Will continue clapping movements if started. —Agitated at motor instruction attempts. —Imitation: fragmented and erratic.	
1- 4 mo.	—Pleasure in event. —Reflexive resistance to attempted motor instruction.	

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TRAINING OR EDUCATION: LEARNING PATTERNS OF YOUNGER DEAF-BLIND CHILDREN

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I. *Some Problems in Classification*

It has become customary in the field of the deaf-blind to describe as "educable" any child who promises to be able to learn language with appropriate instruction and sensory aids, whether or not he also is considered capable of eventual, significant academic accomplishment. The term "minimally educable" is usually employed to distinguish children within this group who appear to have little potential for academics and whose language attainment, itself, is expected to be highly limited, perhaps only extending to fair receptive understanding of simple instructions and explanations in context and to the ability to express ideas through single words or phrases. Until very recently at Perkins, for the partially-sighted child, an intelligence quotient of at least 50 on a standardized performance test, such as the Ontario School Ability Examination or one of the Wechsler Intelligence scales, was considered a necessary minimum for success in a program for educable children; under the pressure of an expanding population, however, and because of the increased need for very early educational evaluation and placement, screening personnel here and elsewhere have tended more and more to take a developmental approach in evaluating deaf-blind children and to classify as minimally educable (often with language prognosis deferred) every child who can demonstrate a basal mental age of approximately 18 months in two or more areas of development critical for the emergence of the use of symbols; in practice, the passing of these milestones may be demonstrated through understanding of simple non-verbal communications (regardless of expressive ability), comprehending participation in family routines, beginning representational play, or through other behavioral evidence that the child has begun to have the intellectual maturity to assign meaning to and remember events in the absence of immediately associated stimuli—has begun, in other words, to organize his experience conceptually. Occasionally at Perkins, a very young child, usually in the 2 to 3 or 3½ year age range, tentatively will be assumed to be minimally educable, even when representational ability is not yet clearly established, because of strong signs of social interest and a difficult to describe but qualitatively impressive alertness to the environment rarely seen among the severely handicapped deaf-blind. By this diagnostic scheme (the last example excepted), "trainable" children are those whose level of interest, social skills, and best-assessed conceptual abilities in each case fall below that to be expected at approximately 18 months; goals for the more mature among these children at least to adolescence will be the establishment of a basic communication system and reliable self-help skill.

Objections to this and to any of the several similar educable-trainable classification schemes come from many quarters and are well-argued. Long-range social expectations vary little for one type of minimally educable child and the more alert high trainable, who may even acquire nearly equivalent communication skill as they mature. This being so, a "trainable" classification frequently is seen as restrictive, closing off certain placement possibilities for the child and not seldomly demoralizing family members. The label underlines the expected ceiling on the child's growth and can prejudice potential [illegible]. On the other hand, an "educable" classification, when the criteria resemble those just outlined, while coming very close to ensuring an opportunity for every child remotely capable of profiting from formal language instruction, also is over-inclusive; pupils are accepted into educational settings and a long-term effort initiated although it is recognized from the beginning that they have very little chance of acquiring language proper.

An unstated corollary to the 50 IQ guideline has been an assumption that every child having an IQ of 50 or better will be able to learn language with suitable instruction. If by this we mean the eventual use, however limited in scope and flexibility, of conventional symbols as relatively context-free referents and some ability to employ the syntactical rules of a mother tongue, it is not always the case that even the more intelligent child will reach the expected level of accomplishment: a fairly rare but very interesting exception is the grossly symbol-deficient child to be described below.[1] In the minimally educable group are several types of pupil who may not achieve language skill because their particular difficulties, in combination, seem nearly to preclude spontaneous learning whenever the object of mental operations is not either physically present or of a sort to permit visually ordered memory. Such a child may remember and imitate household routines rather nicely yet not be able to understand simple gestured instructions, interpret social overtures and non-verbal expressive communications, or shift easily from one way of doing things to another even in a concrete situation. To learn language a child must be able to conceptualize *relationships*, to superimpose an "abstract attitude" upon a reliable awareness of environmental events.[2] Naming present objects in a crucial first step but one which is only intermediate between sign-thing association and true language use. For this to be immediately apparent we have only to think of how little of the meaning of "from," "will go," "charity" can be conveyed in a single picture.

The *trainable-educable* distinction both implies something about a child's developmental level and carries with it assumptions about the outlook for language attainment. An alternate method of classification might de-emphasize the child's current level of functioning and concern itself solely with the prognosis for language learning. This fall at Perkins we will be trying out, as a first step, groupings of children according to whether they require at present a *language* or a *communication* program, and reclassifying currently enrolled younger pupils by presence or absence of potential to learn language (regardless of whether a child is sufficiently mature to be *ready* to learn). If such a scheme were to be adopted in screening the larger population, the real limitations of many minimally educable children could be recognized more clearly, without penalty to a given child, while rather seriously developmentally retarded youngsters having sufficient hearing or central nervous system integrity to acquire some language over an extended training period could be classified more naturally with (if not grouped together in a single program with) language-learning children of considerably greater promise. From the teacher's point of view, there are several advantages of a language-communication distinction: she need not feel that she is marking time before "real" teaching begins during the years in which a pupil may be absorbing the elements of natural gestural communication which he failed to acquire on his own; since in any case the child's needs are paramount (and tend to be unaffected by the teacher's attitudes or expectations concerning her role), she need not see putting her energies into helping a child expand his skill in communicating however he can as "cheating" or as mere preliminary work; actual classroom dilemmas concerning what to emphasize can be circumvented from the beginning.[3]

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[1] Here and below the term "aphasic" has been avoided because aphasic-like behavior in this population appears to be one aspect of a broader deficiency in learning so often that application of the term at Perkins has been restricted whenever possible to well-circumscribed symptoms of language disorder (echolalic or apraxic speech, for example, or particular associational difficulty) occurring where there is evidence of relative integrity in other cognitive areas.

[2] Adoption of the earliest "abstract attitude" does not imply that a child has any understanding of language-related concepts, and even at higher levels we can take it for granted that deafness leads to a smaller share in the community of knowledge if only because so many ideas, such as those of certain polar opposites, which appear to arise spontaneously and inevitably in the course of normal development turn out upon investigation to be language-embedded and conveyed through common usage.

Unfortunately, even under a revised classification scheme, program needs of individual children are not always easily determined. In assessing developmental level (which bears directly on communication skill), several hazards appear. I know from my own experience that it is extremely difficult when doing diagnostic work over a period of time with deaf-blind children not to begin avoiding test items which a majority of even better motivated children fails; this is especially a temptation whenever a child's attention is fleeting and initial rapport has been hard to achieve. As evidence that others are having such problems, a recently developed screening test for the partially-sighted deaf-blind includes no item on which a passable performance cannot be achieved through training, provided a child has the necessary perceptual-cognitive maturity. This comment is not intended to be disparaging; omissions in the instrument suggest that strictly cognitive abilities are so rarely displayed by children referred to the setting where the test originated that the question of whether a child has potential for learning language will seldom arise. If this is the case, my one objection to narrowed testing would be that staff may continue to hope that a child will progress to the point of eventually attaining "language learning status" and may perhaps implicitly promise such progress to parents unless the possibility is clearly ruled out.

To be most useful for assessing the educational needs of an individual child, a screening test should guarantee that his basal level of functioning has been established. It is not at all unusual to see a child 5 or 6 years old whose level of interest and self-occupation are still infantile but whose fine and gross motor skills are comparable to those of the normally-developing 2 or 3 year-old, and who —often after some pressure or coaxing—will offer a performance on puzzles, and occasionally even in drawing, of a kind and quality considered adequate at a mental age of 2 years. In most cases he will appear to have no visual difficulty so severe that it is likely to be significantly affecting learning. Are we to assume that such a child is ready for instruction at the 2-year level in the use of symbols and in self-help? As screening has proceeded, we have no way to know whether the child is ready and no information about his understanding of social communications. He very well may be able to begin learning a few words or signs and interpreting simple pictures or—what is more likely if he was extremely difficult to test—he may not have acquired the ability to attend and understand of even a normal one-year-old; on investigation there may be no evidence whatsoever for the presence of mental imagery or of ability to draw analogies comparable to that already possessed by the mimicking, jargoning toddler.

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[3] "I got to my classroom expecting to teach not just language but *speech*, and there was a child who hardly knew how to wave bye-bye."

A brief and rather "ruthless" screening test, for use with partially-sighted children who demonstrate some skill above the 18 month level, is appended to this paper. A child under about 7 years of age passing all items at the first level is almost certainly going to prove to be minimally educable (in the expanded sense of the term) except in those cases where development is essentially at a standstill because of progressive disease or similarly grave disorder. Even using this test, however, without fairly precise information describing the child's motivational status, the nature of his handicaps, and his rate of learning, it will still be impossible to say whether he will be better served in a program to further communication skills and competence in daily living or in a program of language instruction. A broader approach to educational evaluation seems to be necessary.

II. *A Psychodiagnostic Approach and Educational Groupings*

Of first importance in developmental assessment of the deaf-blind is discovering as much as possible about the kind and extent of a child's sensory handicaps. Certain emotional reactions and developmental delays can be attributed directly to loss or decrease of vision or hearing, and reactions to uneasy handling by family members, periods of hospitalization, or inappropriate school experiences may further complicate development. Judging the degree of sensory handicap, however, is often reduced to a best-guess, especially with younger children. Of 82 children in residence at Perkins for an educational evaluation during 1970 (surveyed in order of referral), the records of 37 show major changes in estimate of hearing level; smaller shifts or inconsistencies over time are recorded for another 18. The tendency is for an estimate of severe to profound loss to be revised toward moderate as a child matures and learns to respond more reliably in testing. A similar trend in estimating visual acuity, particularly in post-cataract cases, leads to attributions of better and more useful remaining vision than earlier seemed the case. Where there are broad signs of neurological damage or dysfunction, often in the presence of pronounced mental retardation, circular difficulties in evaluating either sensory or intellectual capacity appear. A useful strategy is to assume that the greater sensory loss exists until there is very strong evidence contradicting the estimate and to make maximum allowance for its effect on development.

In testing a child not only do we need to discover how far behind normally developing children he may be, assigning a reliable basal mental age, we also need to know something about the range of skill he possesses at that basal (beyond those abilities pulled for in testing), the breadth of his interests at the developmental level on which he functions most comfortably (which may be well below test basal), and his degree of social orientation. Does he confine himself when left to his own devices to only a few highly familiar activities? If so, are these constructive in intent, merely repetitive play, or essentially self-stimulating or "vacuum" activities (mouthing, posturing, playing visually with light and patterns, masturbating)? Since an understanding of daily events and ordinary social communications must precede any attempt to learn language, how much attention does he pay to other people? Does he look at faces, does he learn by observation and imitation, does he show any understanding of gestures and expressions, or try to make his wants known in more refined ways than crying or pushing and pulling? Does he understand that his communications should be directed toward another person? Does he express directly, and with a desire to communicate, emotions other than reactive ones?

From the drift of these questions it is obvious that a child's aims, if not his motivational status, and his ability to express wishes and feelings, if not his responsiveness, largely depend on his cognitive level; they further depend on the presence or absence of physiological disturbance and the integrity of his central nervous system. (Central lesions, however, or metabolic disturbances, endocrine disorders, or the like, can also directly influence apparent motivational status and emotional responsiveness, as well as temperament and stability of mood. Diminished drive is often associated with thyroid dysfunction, for example; the disconcertingly affectionate nature and physical fearfulness of some athetoids are well known). Behaviour patterns, as described in testing and diagnostic classroom reports, of 115 children (selected in order of referral from the somewhat larger group in residence at Perkins for educational evaluation during the last year and a half) have been compared according to—for want of a better term—*response type*. Below are the seven major categories which emerged. Number in each category has been tabulated for *60* of these 115 whose profiles are examined a little further on.

Response Types

A. Characteristics: Normal or near-normal affect for mental age; there may be circumscribed behavioural or attentional difficulties, usually apparently on a CNS basis, yet there is fairly continuous interest in activity in the immediate environment and attention to overtures from others.

Placing a child in this category does not exclude the possibility of difficult behaviour as long as an impression of integrity prevails and the child is essentially self-motivating in a learning situation, so that what is "instructive" is also by and large pleasing to him. Spontaneous and reliably demonstrable social and emotional responsiveness commensurate with the child's basal mental age is essential for inclusion.

Unless development is arrested or other serious disturbance intervenes, there is a positive prognosis for language learning, possible aphasic difficulties notwithstanding.

B. Characteristics: Grossly symbol deficient, "cold", often deeply non-expressive; there may be evidence that in many ways the child is a good observer (he may retrieve hidden objects or recreate arrangements of objects long after the initial observation, or may play in imitation of adult activity), but he appears to have little or no ability to communicate or understand communications above the infant level; possibly ritualistic but does not have obsessive mannerisms and is not withdrawn.

The test performances and behaviour patterns of children in this category often resemble those of the classically "brain-injured", with very low basal mental ages established in a majority of cases and peak performances at or above age level; the children tend to be rigid and have difficulty switching from one way of ordering perceptions, or even objects, to another (unexpectedly poor performances on the Columbia Mental Maturity Scale are the rule, when pictures can be understood at all). These children are not autistic-like although some behaviour may be bizarre; they enjoy attention and affection yet may not seek it out; they look at faces frequently in most cases, if sometimes briefly and not for information or expressive contact.

It is not unusual for a child in this category when strongly motivated or provoked to suddenly display unexpected skill, use speech when he was believed to have no language, or to solve a problem theretofore impossible for him.[4] It may be of significance that there is evidence that damage is frequently at least partially lateralized for this group.

Language outlook is generally poor where communication is lacking; fair communication skill often can be developed by a method of association. Number 4 (plus 2 borderline, B-C, B-E).

C. Characteristics: Distractible, rigid; rallies when "interested" (most frequently when activities are simplified and geared down to the child's level); basal usually depressed well below level of perceptual-manipulative skill; fair to good attention to faces (or to touch and to sounds of appropriate intensity in the blind) and to activity of others; inconsistently responds to communications even where understanding of simple gesturing is apparently good.

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[4] O'Gorman (1970) discusses a recent attempt to develop a therapy to capitalize on this kind of rage reaction among *autistic* children. He questions whether gains made under these conditions are stable once the therapist ceases regularly to intervene. Our limited experience with similar "provocative" teaching or testing methods suggests that they are not.

Mannerisms and self-absorbed activity are frequent in this category, but since the children are basically sociable —if for the most part unspontaneous—attention can usually be drawn outward and new habits established where a child's mental age allows genuinely expanding interests.[5]

A majority of high trainable and minimally educable children belongs under this heading; prognosis for language learning depends greatly on hearing level, extent of existing communication base, and teaching method employed. Number: 12 (plus 7 borderline C-D or C-E).

D. Characteristics: Impression of vagueness; very slow to act or to become aroused, but responds to affection or deliberate, judiciously sustained stimulation; off and on offers attention to faces, or reaches out for a companion if blind; may demonstrate some understanding of simplest communications.

Almost without exception these children have been classified as being only trainable. Developmental changes tend to be especially slow to appear, with gains taking place seemingly all at once; their sociability can mislead during an initial assessment. Results of training are easily lost, and in several cases biochemical disturbance at some level is suspected. For children in this category the development of some expressive communication skill is a reasonable goal. Number: 10.

E. Characteristics: "Autistic-like" in most situations; relates dependably only during highly familiar routines or when hungry or in distress; no interest in faces; shows pleasure when manipulated as if he were an infant; very short attention span, generally, and little tolerance of even pleasurable stimulation.

These children, without exception, are highly limited intellectually. Mannerisms and other signs of neurological disorder are noted in every case and are difficult to curb.

Training goals are appropriate, including efforts to alert the child to communication cues. Ability to relate frequently improves with consistent, objective, warm and somewhat coercive handling.[6] Number: 11 (plus 1 borderline E-G).

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[5] Almost any child can be conditioned to avoid light-switches and to fumble blocks instead. I am referring to an actual shift in preference growing out of satisfying new experience.

F. Characteristics: Autistic, almost unremittingly irritable when approached; some response to training but does little or nothing out of own initiative.

This category is a conglomerate. Children either (1) are obviously profoundly congenitally damaged, or (2) fairly closely resemble descriptions of cases of true infantile autism.

Results of training are unlikely to be stable or impressive among children in the first division; effective intervention may be possible in the second, with some skill in communication resulting. Number: 3.

G. Characteristics: Austistic, pathologically content unless grossly disturbed; some response to training but does little or nothing out of own initiative.

This, too, is a mixed group. Children either (1) show profound developmental retardation and have strikingly little interest in their surroundings, or (2) resemble descriptions of cases of true infantile autism. Although the size of the group is very small, even when drawn from the total of 115 children, it is of interest that the majority is blind.

In both divisions, training seems unlikely to effect marked improvement. Number: 2.

Developmental delay may be seen in only one or two, or extend to many areas of functioning, or even appear in such degree that a child is completely and permanently infantilized. Mental retardation may be the single symptom (other than sensory impairment) of organic damage or dysfunction, or it may be present in association with fine or gross motor difficulty, evidence of sensory processing or perceptual disorder, or of a symbolizing or specific language disorder; signs of any of these difficulties can appear, of course, without there being generalized retardation. Apparent seizures or seizure-like behaviours are also frequently seen. Because it is symptoms such as these which are of greatest immediate concern in the classroom, and which at the same time seem most likely to yield to therapy, we keep notes for each child on evidence for the presence of any additional impediment to learning. A partial listing of difficulties seen among the 60 children in the key study group for this presentation highlights problems in making a reasonable educational assessment and in program planning.

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[6] Deslauriers and Carlson (1969, Chpts. IV and V) present a rationale for a therapeutic-teaching approach for use with one group of autistic children which is very similar to the teaching-play most effective with children in this category, and which involves calling attention during fairly vigorous, appropriately exciting physical activity. O'Gorman (1970, p. 61, 85) mentions an electroencephalographic technique which has uncovered in a significant number of children described as autistic brain wave patterns suggesting that visual and auditory stimuli very often are reaching the hypothalamus but not the frontal cortex and that anticipation based on perceptual cues may not be taking place. An analogous if not identical situation appears to be the case with many of the deaf-blind.

	Number
Seizures by history	4
Seizure-like behaviours (for example: frequent staring spells; excitements or periods of self-stimulation ending in generalized motor discharge; prolonged giggling or heavy breathing)[7]	12
Perseverative behaviour (for example: hand-waving and light-gazing; compulsive mouthing; involuntary fine or gross movements)[8]	47
Fine motor involvement (significant difficulty which cannot be attributed to immaturity)	5
Gross motor involvement	14
Disturbance in sleeping or eating	13
Inordinate appetite, small weight gain	6
Hyperactivity (stimulus-bound as distinguished from disinhibited responses)[9]	5?
Sudden and seemingly unprovoked mood swings or shifts in state of arousal	15
Language disorder (assessed independently only where the child has sufficient maturity)	12

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[7] Recently we have been discussing with consultants in neurology the possible benefits of administering central *stimulants* to certain passive, disorganized children who appear to be experiencing seizure-like episodes of one sort. Although amphetamine should not be given when petit mal seems likely, "pyknoleptic" seizures have been described (Slater and Roth, 1969, p. 673) which a stimulant may control.

[8] Perseverative behaviour from immature children, and particularly from the blind, should be carefully assessed. What appears to be stereopathic activity may be developmentally appropriate repetitive play, perhaps bizarrely elaborated because of an absence of needed stimulation or opportunity to vary activity. For the congenitally blind the "sensori-motor" period of development normally will be extended an additional 6 to 12 months, and in slower children habits may be built up which are difficult to abandon.

[9] Defining hyperactivity and then reaching a consensus in its application is so treacherous one wonders about the usefulness of the term for educators.

Educational Groupings

Although there is no necessary correlation between severe difficulty in communicating, relative lack of interest in other people and deep retardation, a child's response type in this population, as well as the number of signs of additional interferences with learning he may show, is rather closely related to mental age. (Attention-seeking and often indiscriminately affectionate behaviour appear frequently in chronic brain syndrome cases of types seldom referred to Perkins because they do not carry sensory handicaps with them as a rule.) One consequence is that sensory loss cannot be seen as a major cause of remote, non-communicating behaviour; some children referred behave in this way without having significant peripheral impairment. Nor is the part played by sensory loss in determining educational classification (beyond that of deaf-blind) of great importance. Degree of sensory impairment, and particularly hearing level, becomes critical, however, where language prognosis is questionable.

Within certain limits, the age of a child in any given educational grouping is relatively insignificant when goals are being outlined. A 3-year-old who is remote and distractible, and who is functioning in approximately the 18 month range, should be considered for the time being to have possibilities for growth and better organization of responses that a 5-year-old showing very similar behaviour does not—although in fact the 3-year-old may still be behaving in much the same way when he, himself, reaches 5. A 9-year-old just acquiring some of the normal toddler's cognitive and manipulative skills can be said with assurance to have only highly limited growth possibilities even placed in the finest communication program. Greater age significantly benefits a child most often in those cases where fair to good potential for training already can be seen but where neurological or other difficulties are such that the child cannot offer attention or control himself easily before late childhood or early adolescence; occasionally, striking improvements come about apparently as a by-product of physical maturation.

The total number of children in the following groupings is 60.

A. *Performance I.Q. of 50 or above, relatively little test scatter.* Number: 3

Hearing:	*Response type:*
moderate to severe loss: 2	A: 2
severe to profound loss: 1	A-C: 1

[*]*Vision:*

educationally useful: 2
blind: 1
(bilateral cataracts in 1 case)

Associated Difficulties:

fine and gross motor involvement.
perseverative behaviour.
seizures by history.
language disorder.

Age:

4-0 to 4-11: 1
6-0 to 6-11: 2

B. *Scattered test profile*, often with low basal but ceiling at or beyond C.A. (I.Q. of 50+ in two cases). Number: 6

Hearing:

moderate loss: 1
moderate to severe loss: 1
moderate to severe loss: 2
very severe to profound loss: 1
? very severe to profound loss: 1

Response type:

A: 1
B: 3
B-C: 1
B-E: 1

Vision:

educationally useful: 6
(monocular cataract in 4 cases; bilateral cataracts in 1 case).

Associated Difficulties:

fine and gross motor involvement.
perseverative behaviour.
seizure-like behaviour.
disturbances in sleeping or eating.
language disorder.

Age:

5-0 to 5-11: 5
7-0+: 1

C. *Basal at 16-18 months, strong ceiling at about ½ C.A.* Number: 8

Hearing:

moderate loss: 2
moderate to severe loss: 1
severe to very severe loss: 1
very severe to profound loss: 4

Response type:

A-C: 1
A-D: 1
C: 1
C-D: 4
D: 1

Vision

educationally useful: 7
gross form and light perception: 1
(bilateral cataracts in all cases)

Associated Difficulties:

fine and gross motor involvement.
perseverative behaviour.
seizure-like behaviour.
inordinate appetite.
mood swings, changes in state.

Age:

5-0 to 5-11: 3
6-0 to 6-11: 4
7+: 1

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[*] Acuity with correction, if any. Cataracts are congenital and operated in most cases.

D. *Basal at 16-18 months (unstable), weak ceiling to 36 months.* Number: 3

Hearing:

mild to moderate loss: 1
moderate to severe: 1
? severe to very severe loss: 1

Vision:

poor: 2
blind: 1
(bilateral cataracts in 2 cases).

Age:

5-0 to 5-11: 1
7+: 2

Response type:

C: 2
C-E: 1

Associated Difficulties:

perseverative behaviour.
hyperactivity.
mood swings, changes in state.

E. *Basal at 14-16 months, ceiling at 24-30 months (rare perceptual-manipulative successes above 30 months).* Number: 4

Hearing:

moderate to severe loss: 1
severe to very severe loss: 1
very severe to profound loss: 1

Vision:

educationally useful: 3
blind: 1
(bilateral cataracts in 3 cases).

Age:

3-0 to 3-11: 1
5-0 to 5-11: 2
6-0 to 6-11: 1

Response type:

C: 1
C-D: 1
D: 1
E: 1

Associated Difficulties:

gross motor involvement.
perseverative behaviour.
seizure-like behaviour.
disturbances in sleeping or eating.
? language disorder.

F. *Basal at 12-15 months, ceiling under 24 months.* Number: 4

Hearing:

mild to moderate loss: 1
moderate loss: 1
very severe to profound loss: 2

Vision:

educationally useful: 2
poor: 2
(bilateral cataracts in two cases; monocular cataract in two cases)

Age:

5-0 to 5-11: 1
6-0 to 6-11: 3

Response type:

C: 2
C-D: 1
D: 1

Associated Difficulties:

perseverative behaviour.
seizure-like behaviour.

G. *Basal at 10-12 months, ceiling at 18-20 months.* Number: 3

Hearing:

mild to moderate loss (greater in high frequencies?): 1
severe to very severe loss: 1
very severe to profound loss: 1

Response type:

C: 1
C-E: 1
D-E: 1

Vision:
educationally useful: 2
poor: 1
(bilateral cataracts in 2 cases;
monocular cataract in 1 case)

Age:
2-0 to 2-11: 1
3-0 to 3-11: 1
5-0 to 5-11: 1

Associated Difficulties:
perseverative behaviour.
? hyperactivity

H. *Basal at 8-10 months, ceiling at 18-20 months (some trained performances to 24-30 months).* Number: 6

Hearing:
? mild to moderate loss: 3
moderate loss: 1
very severe to profound loss: 2

Vision:
educationally useful: 5
poor: 1
(bilateral cataracts in 4 cases;
monocular cataract in 1 case)

Age:
3-0 to 3-11: 2
4-0 to 4-11: 1
5-0 to 5-11: 2
7+: 1

Response type:
C: 2
C-D: 1
E: 1
F: 1
G: 1

Associated Difficulties:
perseverative behaviour
mood swings, changes in state

I. *Basal at 8-10 months, ceiling at 12-15 months.* Number: 7

Hearing:
normal or mild loss: 3
mild to moderate loss: 1
moderate to severe loss: 1
? very severe to profound loss: 1

Vision.
educationally useful: 4
poor: 2
blind: 1
(bilateral cataracts in 5 cases;
monocular cataract in 1 case)

Age:
4-0 to 4-11: 2
5-0 to 5-11: 3
6-0 to 6-11: [illegible]
7+: 1

Response type:
C: 1
D: 2
E: 3
E-G: 1

Associated Difficulties:
gross motor involvement
seizure-like behaviour.
mood swings, changes in state
generalized immaturity affecting eating, sleeping, play habits

J. *Basal under 8 months, ceiling at 12-14 months.* Number: 4

Hearing:
moderate to severe loss: 1
severe to very severe loss: 1
very severe to profound loss: 2

Response type:
D: 2
E: 1
F: 1

Vision:
educationally useful: 1
poor: 3
(bilateral cataracts in all cases)

Associated Difficulties:
seizures by history
seizure-like behaviour
generalized immaturity

Age:
4-0 to 4-11: 1
5-0 to 5-11: 2
6-0 to 6-11: 1

K. *Basal and ceiling under 12 months* (rare performance above 12 months in two cases). Number: 11

Hearing:
? normal: 3
? normal or mild loss: 1
mild to moderate loss: 1
? moderate loss: 2
severe to very severe loss: 3
very severe to profound loss: 1

Response type:
C: 2
D: 4
E: 4
G: 1

Vision:
educationally useful: 3
poor: 3
gross form and light perception: 2
blind: 3
(bilateral cataracts in 6 cases)

Associated Difficulties:
mood swings, changes in state
generalized immaturity

Age:
3-0 to 3-11: 2
4-0 to 4-11: 1
5-0 to 5-11: 4
6-0 to 6-11: 2
7+: 2

L. *Untestable; impression of at least borderline intelligence.* Number: 1

Hearing:
normal acuity

Response type:
F

Vision:
blind

Associated Difficulties:
? gross motor involvement
disturbances in sleeping and eating
mood swings, changes in state
language disorder.

Age:
4-0 to 4-11 range

It may seem to be splitting hairs to group children by basals as little distance from each other as some of these are. Yet there are extraordinary differences in level of skill and social knowhow among normal infants at 8, 10, 12, 14 and 16 months, and the extent to which more severely damaged deaf-blind children functioning at these mental levels share in such gains is crucial for educational planning. However, while it is unnecessary to stress that we are dealing with deviant rather than normal development, it should be mentioned that gains are rarely as clear as they are in normal children: a deaf-blind child *interested in* but experiencing difficulty in mastering a 12-month manipulative task may have a relatively advanced grasp and release yet at the same time find it almost impossible to keep his eyes on what he is doing—in strong contrast to the intent but clumsy performance of a normally maturing infant. Similarly, the deaf-blind child's lack of response in a too-complex situation is very seldom merely infantile. He does not simply ignore what he cannot do or does not understand; he more often actively avoids potentially "stressful" encounters and closes off opportunities for learning.

Relating poorly can be considered another direct consequence of retarding damage, or it can be seen as a response to the emotional climate which may surround a child, especially to ambivalence in caretakers provoked by his handicapped condition and prolonged dependence. In the latter view, a child becomes further entrenched in his unfortunate way of meeting the world because of his limited ability to moderate or improve responses on his own initiative. Whichever the view of the teacher, if the child's basal level is above approximately 10 months, affectionate and appropriately structured attention almost always will lead fairly rapidly to improved "mood" tone, greater tolerance of physical handling and of necessary restrictions, and to more child-like and enthusiastic responses to social overtures. And all of this usually without significant change in the child's present level of functioning. It is hard to avoid concluding that withdrawal in the majority of children in this population indicates basic limitation, and unfortunately it is often the case that the more severely injured the child, the more complex and difficult to interpret the social-emotional environment he must negotiate and learn to comprehend.

III. *Etiological Considerations*

When a handicapping cause and its timing, when therapeutic efforts, family situation, level of intelligence and mental health of the parents all appear to be about the same in two cases, and yet learning difficulties and degree of retardation are much more pronounced in the first child than in the second, one is led to speculate about possible predisposing factors. We tend to talk about the deaf-blind referral population as if it were made up almost entirely of younger children severely congenitally damaged by maternal rubella. Yet if only for future program planning, it should be recognized that while a *large* number of children certainly meet this description, by no means all of them do. For example: of a group of 85 children surveyed in order of referral, 58 were considered by physicians to have been handicapped as a consequence of maternal rubella; in many of these cases, the diagnosis was probable but not certain. Another 3 referrals came with well-established alternative diagnoses, but for the remainder of the group, 24 children, handicapping causes were unknown (15 cases among these 24 also *possibly* may have been damaged as a result of maternal rubella; however, the physical appearance of these children, their behaviour and medical histories suggested that rubella as a cause was unlikely). A preliminary survey of the family and medical histories of this group of 85 (previously reported during the First National Workshop on Deaf-Blind Children in January, 1971) found strong evidence for multiple causes of damage in 29 of the 58 cases in which maternal rubella was probable or certain, and in 4 of the 15 cases in which rubella was a possible agent. Just over one-half of the largest conceivable rubella group, then, may have been handicapped as a result of complex systemic or genetic interaction with the disease, which itself effects chromosome changes, or may have been handicapped by an independently operating influence on development appearing in combination with rubella.

Just what constitutes fetal vulnerability to the virus is not known, and probably differs from child to child, but it is clear that only a relatively small percentage of those exposed in utero are severely and multiply handicapped.[10] With this variability of effect in mind, it seemed worthwhile to review the records of a large number of recent referrals to Perkins in search of possible evidence for the existence of etiologically significant factors (excluding post-natal damage or disease) *other* than rubella or, in a few cases, another apparent immediate cause of pre- or perinatal damage. Histories of the 115 cases mentioned above were examined, and medical conditions of possible import appearing in members of the greater family were tabulated.

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[10] Figures vary considerably. A common estimate of the risk of transmission to the placenta by susceptible women is approximately 20%. Crome and Stern (1967, pp. 36-37) cite conclusions of a respected study in Britain, that 70 of 100 infants whose mothers contract Rubella during the first trimester can be expected to have no serious defect (other than a degree of hearing loss in 10 of these 70), but caution that there are major differences in results of British and American surveys.

By greater family is meant siblings, parents, and grandparents of the referral child, his parents' siblings and their children. Where a condition is reported as occurring in several members of a family it has been recorded here once, so that only one example in each category appears per family. Only one disorder or defect, where these occur in a usual combination, is recorded per individual, so that a retarded, epileptic sibling or cousin of the referred child, for example, has been classified under epilepsy but not mental retardation; similarly, cerebral palsy is recorded separately only when it does not appear together with primary mental retardation. In all cases, an effort has been made not to inflate the figures misleadingly; questionable histories have been ignored, and late-appearing sensory disorders in family members have been dropped from the count. Even when evidence is condensed in this way, the figures are suggestive. An impression is that prematurity of the referred child and complications during other pregnancies of the mother are more common than can be easily explained, and that some conditions appear more frequently in the families of children referred than one would expect them to appear in families of normal schoolage children (when there is no major biasing characteristic of these families, in turn). Making an adequately controlled comparison is a more ambitious project than we have had time to undertake, however. One fact that can be noted at this point accords well with a common finding of studies of other handicapped groups: among these 115 children there are just under 1½ times as many boys as girls.

Circumstances of Pregnancy

Birth order of referred children (excluding miscarriages but not stillbirths):

First born	39	(Twin pairs, only one of whom was referred in each case	2)
Second born	23		
Third born	25		
Fourth born or below . . .	22	(Unmarried mothers	7)
No information	6		

Less than 38-week gestation period: 23 referred children.
Rh incompatibility: 5 sets of parents.
Serious complications during other pregnancy of mother (toxemia, miscarriage, stillbirth, sudden death of newborn): 30 women.

Conditions Reported in Greater Family[11] (history may touch one or more individuals)

A. Conditions possibly immediately related to handicaps of referred child:

	Number of families
—Hearing disorder having early onset	12 families
—Serious congenital ocular defect or early blindness	13 families
—Significant mental retardation	14 families
—Adequately diagnosed learning disability	1 family
—Epilepsy	12 families
—Other: cerebral palsy, spina bifida, multiple sclerosis, orthopedic disorder, heritable heart defect	16 families

B. Conditions possibly suggesting unusual vulnerability to noxae or underlying biochemical disturbance:

—Diabetes	19 families
—Thyroid disorder	3 families
—Severe allergies or asthma	10 families
—Cancer	8 families
(leukemia	1 family)
—Tuberculosis	2 families
—Recurring febrile seizures	1 family
—Emotional disturbance (sufficiently serious to require i. hospitalization, ii. drug therapy beyond temporary medication during periods of stress, or iii. neurological investigation)	14 families
—Alcoholism	3 families

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[11] Histories were not available for 6 families, while 4 families are entered under 5 or more categories. In 4 other cases one or more of the child's handicaps seemingly are the result of an anomalous chromosome or recessive gene effect, and there is no related instance known in the greater family.

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Screening Test for Use with the Visually-Oriented Deaf-Blind

M.A. Range: 24 to 48 months.

Focus: Acquisition of second-level concepts and development of cognitive strategies. Sensori-motor competence to 18 months is presupposed.

The aim of the test is to uncover the extent of a child's ability to see relationships and remember, learn by observation, anticipate and plan simple procedures. Earlier items provide some additional information about fine motor skill and impulse control. A teaching-testing approach to assessing mental ability is assumed; where a child can learn, retain, *and generalize* a solution to a test problem (when different materials are used), the item is considered passed without qualification. Note should be made, however, of the kind and amount of instruction required and whether repeated motor patterning was necessary.

24 months

—Discriminates square and round pegs, Wallin pegboard (Merrill-Palmer).
—Draws horizontal and vertical lines in imitation.
—Strings several large beads in imitation and with little urging.
—Watches with interest and some comprehension while examiner draws a simple picture of a face and points out features (draw circle, eyes, mouth, nose, ears, hair, in this order).
—Shows pleasure in possibility of "naming" (See Robbins paper this conference on the diagnostic value of teaching a sign).

30 months

—Builds tower of 3 cubes in direct imitation of examiner upon gestured instruction.
—Screws top on jar in imitation.
—Folds 8 inch square of paper once in half in imitation.
—Matches several common objects to bright simplified pictures of each object (shoe, spoon, comb, and the like: colors in the pictures should not be identical with those of the objects).
—Makes circle from 2 halves in imitation (stiff 2 inch half-moon cutouts presented back to back).

36 months

—Sorts 4 colors with good attention and few errors (poker chips, Peabody chips, or similar tokens, into boxes where several of each color are already amassed).
—Copies picture of cross.
—Places 12 cubes neatly in box.
—Categorizes by sorting simple pictures of common objects (clothes, food, toys, for example).
—Understands at least 10 signs or natural gestures with little help from context.

*42 months**

—Builds a bridge of cubes from a pictured model.

—Fits 4 nesting boxes deliberately, correcting easily.

—Continues alternating pattern of cubes of 2 different colors placed in line (red, yellow, red, yellow).

—Categorizes simple pictures of furniture by usual arrangement in rooms (matching to a picture of the appropriate room).

—Engages in narrative dollplay (may be very elementary: "Toileting", "putting to bed", "work").

48 months

—Matches 7 of 10 line drawings of geometric forms by pointing (1960 Stanford-Binet "Discrimination of Forms", IV-5).

—Taps once on each of 4 cubes spaced out in a line, left to right in imitation of the examiner (Ontario School Ability Examination "Knox Blocks"—Series A).

—Copies picture of square.

—Places 1, 2 or 3 cubes over groups of 1, 2, or 3 large dots on page.

—Identifies one of three hidden objects by gestures (modified 1960 Stanford-Binet "Naming Objects from Memory", IV-2).

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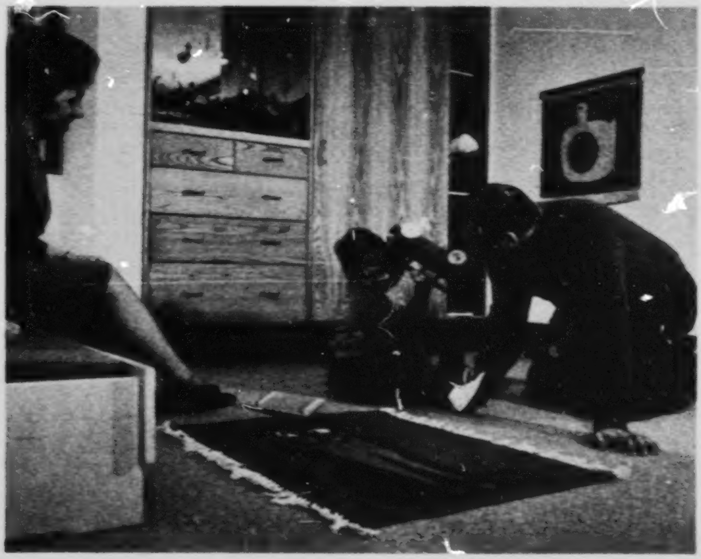
* If a child can be credited on most items at 42 months, he is fully ready to take a standard performance test of intelligence.



Parents playing with their deaf-blind youngster.

TOWARD ASSESSING THE LANGUAGE LEVEL OF OLDER DEAF-BLIND PUPILS: CORRELATES OF ACHIEVEMENT ON THE PEABODY PICTURE VOCABULARY TEST

By JANE ELIOSEFF

Currently in the United States much careful work is being done to develop psychodiagnostic techniques and new approaches in educational evaluation for use with the very large, and suddenly quite visible, population of multiply-handicapped children educationally classified as deaf-blind. There is little research to fall back on, however, when the problem becomes one of how to assess the school progress of this same group of children once they have been screened and appropriately placed. We have tended to compare a pupil to himself of the year before, relying on the teacher's estimate of progress, comments from the family, and on testing-by-encounter, or to compare him to others of his age in the same intelligence range, using various rules of thumb. In the Perkins Deaf-Blind Department, when a pupil appears "ready" annual Stanford Achievement Tests are introduced and the results rather uneasily related to reported results in the field of the deaf.

Because pupils are taught individually, a given department can make do with such a system very well—in Perkins' experience, for years. But with the growth of new programs and emphasis on research with new methods of instruction (in all branches of special education), more objective measures of pupil progress become necessary, if only for the self-evaluation of programs. The critical goal of education for the deaf-blind is assuring that pupils will leave school having some command of language; yet, it is in the area of language attainment, especially, that an instrument standardized for use with the deaf-blind is wanted, one which does not unduly penalize the pupil for having highly limited experience in the world or little knowledge of conventional ways of ordering facts. Of the achievement tests with which I am familiar, each presupposes at least normal gradeschool exposure to certain information, through the manipulation of which formal skills can be revealed. The suspicion is that such tests are not adequate for assessing either the base of knowledge or the formal skills of our pupils, given the environment in which learning takes place and the specialized applications teachers encourage from pupils who are progressing "normally".

The simplest, most work-free approach to developing the necessary instrument is not, of course, to begin from scratch designing a test to measure language achievement but to adapt and restandardize an existing instrument. When the pilot to be described here was planned, an initial decision had to be made between linguistic inventories, proper, and wide-range vocabulary tests. (Formal tests of grammar were not considered; these are not appropriate for pupils in the early stages of language learning and they contain many pitfalls even for the more advanced deaf—in addition to being heavily loaded in favor of children having larger vocabularies.) Unfortunately, while the ideal linguistic inventory would yield more information than a test of vocabulary about the depth of a pupil's understanding of the forms of language, most well-known inventories are screening tests for use with young hearing children, designed to call attention to particular broad language deficiencies, if they are present, or to underscore evidence of language disorder. For these purposes the tests are extremely valuable, but they have limited range and are not intended to discriminate among children demonstrating the same general level of language competence. Conversely, the Illinois Test of Psycholinguistic Abilities (ITPA) related by type to the inventories, is a sophisticated, many-purpose diagnostic instrument, but potentially the most informative subtests are too advanced for use with the younger deaf. Of vocabulary tests, the 1960 Stanford-Binet and Wechsler Intelligence Scale for Children vocabulary subtests appear most frequently to be offered to both normal and exceptional children. As with achievement tests, however, the form of response called for is such that some skills to be tested for are presupposed: the word to be identified must be verbally defined.

The Peabody Picture Vocabulary Test seemed to have several advantages. Compared to other instruments, it is relatively inexpensive; administration and scoring are straightforward. Because the test requires only that a pupil select one of four pictures in response to a stimulus word, it appeared to have few hidden demands, provided the pupil is familiar with picture conventions; there seemed to be less room for the kind of error resulting from misunderstanding or fluctuating attention common in the testing of pupils who—often as a result of central nervous system damage or disease—have difficulty carrying through on complex tasks. The constructor of the Peabody, Lloyd M. Dunn, described the test as having an exceptionally wide range, with a (for our purposes, necessary) concentration of items at what would be the preschool level for children acquiring language normally. Finally, Professor Dunn had collected and commented on studies (published to 1965) of the reliability and validity of various aspects of the tests, including a few studies with the deaf and retarded. Such preliminary work is essential if we are to be confident that the test chosen is appropriate for the wider population and suitably difficult for pupils of differing abilities; and, this was labor-saving research of great benefit once Perkins' results were in hand.

The limitations of the Peabody were no greater than they would have been with any test available. It cannot be offered to the pupil who is blind or whose vision is so reduced that he is tactually-oriented for learning. This eliminates the truly deaf-blind but affects only a small proportion of the present population of educable children if the ratio at Perkins is representative. Of less immediate importance, generalizing conclusions based on the scores of normal and retarded hearing children, the test probably should be used only with subjects who have learned English in the United States; items and illustrations are by no means (and were not intended to be) "culture fair". An impression is that for pupils not exposed to the language and subject matter of television and radio several items also have regional bias (e.g., "weiner," "saddle," "whip"); there does not seem to be a sufficient number of such items, however, to jeopardize results.

Subjects: The Peabody was administered to 20 older pupils enrolled in the Department for Deaf-Blind Children at Perkins—that is, to almost every older child and adolescent in the department capable of performance, a group very well representing the intelligence range and language handicap types of the educable younger children now being referred in large numbers here and to other evaluation centers. At the time of testing the pupils' ages ranged from 9 years, 9 months to 18 years, 4 months. The minimum number of years of formal instruction was 4 years, 7 months. Some of these pupils are more academically capable and eager to learn than others, but the group includes no one presenting extreme behavior problems or showing signs of severe emotional disturbance. A significant number have diagnosed language disorders in addition to hearing loss, and for one-half the group oral instruction has not been attempted or has been discontinued, and language instruction through fingerspelling and print (in one case, through fingerspelling, print and signs) undertaken in its place. Brief individual profiles of the pupils are appended (A); information used in drawing conclusions from testing has been tabled on the next page.

Non-verbal intelligence quotients were estimated using the pupils' most recent scores on the WISC Performance Scale and the Ontario School Ability Examination; each estimate was then rounded down to a multiple of 5 so that, for example, an estimated IQ of 98 became 95 in the table. The Ontario, although less well-known than the WISC, is also a performance test, one which requires less elaborate gestured instructions and which has been standardized, as well, for use with children who are deaf or lacking language facility. In this department over a number of years WISC Performance scores and Ontario scores, which can be obtained from pupils somewhat earlier in their school careers, have tended to agree within a few points of each other, and for these reasons Perkins has continued to make use of the Ontario although it is no longer published.

Ten pupils had school experience previous to enrollment at Perkins. The number of years in school with which a pupil has been credited, then, is the total number of years of formal instruction received, regardless of place or method, but excluding preschool or other early therapy experience.

Procedure: Both forms of the Peabody, A and B, were offered, in most cases on the same day and with less than an hour's intermission between tests; the order was A.B for half the group, and B.A for the other half. Presentation differed from standard in two respects: stimulus words were not spoken but were hand-lettered in 2" print on classroom sentence-strip paper cut to 12" lengths; testing was discontinued after 8 consecutive errors or when the pupil obviously was successful only by guessing (normally, the test is discontinued when 6 of 8 responses are incorrect). There was no time limit; pupils were free to adjust the materials in any way they found helpful.

Scoring: Each test was scored twice, after 6 errors in 8 responses and after 8 errors in 8. There were two related reasons for experimenting with alternate methods of scoring. It was believed that an 8/8 scoring would provide more data for determining the validity of the order of the items, at the same time that it would expand the

TABLE I

Name	Sex	Age	Years in School	Mode of Communi-cation	Estimated IQ	A	B	PPVT Average	SAT Grade Score	
									Word Meaning	Paragraph Meaning
PL	f	1[illegible]- 4	6-7	manual	50	11	4	7.5	—	—
RR	m	16- 0	6-3	manual	50	6	12	9	—	—
DR	m	11- 4	5-7	manual	55	12	9	10.5	—	—
MD	f	11- 2	5-7	oral	65	16	15	15.5	—	—
BA	f	14- 9	9-3	manual	55	15	17	16	—	—
EM	m	10- 2	5-7	manual	75*	16	17	16.5	—	—
CT	f	17- 1	11-7	manual	55	21	20	20.5	1.7	1.5 P2
BV	f	11- 5	5-7	manual	65	30	20	25	—	—
YF	m	13- 4	7-7	oral	85	18	35	26.5	2.0	1.7 P2
MS	m	9- 9	4-7	manual	100	27	31	29	—	—
KR	m	12- 5	[illegible]-7	manual	60	35	32	33.5	1.9	1.8 P2
HS	f	17-11	9+ †	oral	75	33	34	33.5	1.9	2.9 P2
HT	m	12- 7	4-7	oral	105	41	32	36.5	1.8	2.2 P2
LS	f	13- 6	6-7	oral	70	32	41	36.5	2.8	1.9 P2
FL	m	14- 3	6-7	oral	55	32	50	41	2.0	2.4 P2
HC	m	12- 6	7-7	oral/manual	100	47	41	44	1.6	2.7 P2
JW	m	13-11	4-7	oral	90	45	51	48	3.7	3.1 I1
SB	f	18- 4	12-7	oral	85	52	45	48.5	3.5	3.4 I1
ME	f	17- 3	10-7	oral	95	59	50	54.5	3.6	5.4 I2
AT	m	16- 5	10-7	manual	85	53	60	56.5	4.1	3.9 I2

* Large discrepancy between Ontario IQ and other test IQs; no WISC available.
† No information about extent of previous schooling; normal development to age 4 years; 9 years in school is an estimate.

range of scores, giving pupils with large but spotty vocabularies a better opportunity to demonstrate their knowledge if the order of the items proved to be relatively unsatisfactory.

Results:[1]

Test Construction:[2] With three possible exceptions, plates 17, 18, and 22, the drawings of the Peabody, at least through plate 60, were sufficiently bold in outline and clearly defined to be recognized even by pupils having visual acuities of 5/200 or less; no errors could be attributed directly to poor vision other than on the plates enumerated, and even these errors were not unambiguously due to inadequacy of the drawings. Indirect effects of visual strain are difficult to gauge. The child having the least vision in the group, as well as a limited visual field, brought the page in good light to within an inch of his eyes and scanned each picture systematically until it was identified. One guesses that this way of viewing the pictures is taxing and that another child might be less cheerfully persistent, and, in fact, in a previous study the performances of a group of legally blind pupils having low average to average intelligence improved somewhat when enlarged plates were presented; no such improvement was observed among the partially-sighted, however.[3]

Against expectation, *item validity* coefficients (apparent order of difficulty vs. order of presentation) for both forms of the test were very high: $r_s = .84$, Form A; $r_s = .86$, Form B (values corrected for ties; in both cases, $p < .01$). Items were ranked by number of correct identifications (under 8/8 scoring) to the point at which one-half of the pupils had been eliminated from the test; this occurred at item #67 of 150 on Form A, at item #62 of 150 on Form B. Extreme deviations from natural rank order primarily involved verbal forms for pupils having the smallest vocabularies and those abstract or relatively unusual nouns which happen regularly to be introduced into classroom unit work for pupils in the intermediate stages of early vocabulary building. (The exact ranking may be of interest to other researchers and is included in Appendix B.) It is

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[1] Wherever reasonable, procedure for analyzing results and statistical method has conformed to those of previous research on the Peabody so that findings can be compared. For advice, I am grateful to Barbara Williams, M.A., Cambridge, Massachusetts.

[2] For rationale and discussion of the test's construction, see the *Manual of the Peabody Picture Vocabulary Test*. 1965 edition, American Guidance Service, Inc., Circle Pines, Minnesota.

[3] Mueller, M. W. Effects of illustration size on PPVT test performance of visually limited children. *Exceptional Children*, 1962, Vol. 29, 124-8.

Table II

Scoring Differences

	Form A	*Form B*
8/8 Scoring	range: 11-68; mean: 36.25	range: 7-77; mean: 36.6
6/8 Scoring	range: 6-59; mean: 30.05	range: 4-60; mean: 30.8
Point gain, 8/8 over 6/8	range: 0-17; mean: 6.2	range: 0-17; mean: 5.8
	Order of Presentation	
	Form A, Form B	Form B, Form A
8/8 Scoring	Form A high, 6 of 10	Form A high, 5 of 10, 1 tie
Point gains:		
A over B	range: 1- 8; mean: 4.5	range: 2- 9; mean: 4.67
B over A	range: 2-15; mean: 7	range: 0-14; mean: 6.8
8/8 Scoring	Form A high, 5 of 10	Form A high, 5 of 10
Point gains:		
A over B	range: 1- 9; mean: 4	range: 3-10; mean: 7
B over A	range: 1-18; mean: 7.2	range: 1-17; mean: 9

likely that item rank correlations are somewhat inflated, however, because pupils were eliminated from the test so rapidly even under the revised method of scoring. It also should be noted that here and in the relations examined below there is some evidence that Form A may be slightly more useful with this population than Form B.

Rank correlations of scores obtained by *alternative methods of scoring* (6/8 vs. 8/8) were also higher than had been anticipated: $r = .77$, Form A; $r = .90$, Form B (values corrected for ties). The ranges and means of points gained over scoring 6/8 by scoring 8/8 were almost identical for the two forms. *Order of presentation* appeared not to affect scores. (This latter result was not a surprise; if word-finding is a fairly vulnerable activity, for most of us receptive vocabulary is very stable, slow to be influenced by anxiety or fatigue.) With these findings, 8/8 scoring was abandoned; it offered no clear advantage, it prolonged the test unduly (pupils frequently became restless during the second testing session, as for the second time recognizable words appeared less and less often), and it unnecessarily introduced a subjective element into a decision to discontinue the test.

With item validity appearing to be high and standard scoring to be at least as useful as extended scoring, raw scores obtained by the standard method were ranked and correlated to test the *equivalence of Forms A and B*, with the resulting coefficient being more than satisfactory: $r_s = .87$ ($p < .01$). Given the fairly wide range of ability in this group of pupils, an even closer correlation between performances on alternative forms might have been expected. Several of the pupils are erratic, however, in academics as on tests (there were two 17-point shifts upward in score from Form B to Form A, for example, and one 18-point drop), and they provide an excellent introduction to what we can expect when we assume a too-close relation in this population between a pupil's performance on any one test and his capabilities when he is most willing and best able to attend; with experience of the child, we can specify only the range in which we anticipate that a performance will fall, and mentally correct for individual fluctuations if called upon to be more precise. To disallow these few extreme cases, a test average for each pupil was computed and it is rank based on this figure which has been used below.

Correlates of Achievement: If the Peabody is to be adopted as an achievement test, educators might hope that a reasonably close relation could be demonstrated between language attainment as measured by the test and time dedicated to a child's formal instruction. The actual correlation for this group of pupils of *number of years with Peabody test average* is positive but not impressive: r = .20 (this, and all values below have been corrected for ties when necessary). The coefficient is so small that it might be suspected that chronological age, alone—the sheer number of years during which a pupil has been gaining experience and being exposed to others communicating around him—is responsible for the relation. This would make some sense; the older pupil is in general more self-aware than the younger and better motivated in most cases to communicate about subjects beyond his immediate needs (although, even without other evidence, such an enlarged horizon could easily be attributed to expanding language skill, itself). Unlike for public school pupils, chronological age and number of years in school are related for this group only in the magnitude of .54, and, in fact, when the possible influence of age on the relation of test average to years in school is partialled out the apparent advantage of longer schooling disappears: Txy.z = .0005.

This should not be understood to imply that schooling is of no benefit. When the assumption is turned on its head and the relation of *age to test average* calculated with the possible influence of schooling held constant, the coefficient also drops: r = .37, Txy.z = .16. It is safe to conclude only what we already know: that in this population both age and number of years of instruction are related to progress in language learning, but that neither can be said to be determining language attainment independently of the other, and that the mere passage of years, in either case, does not guarantee high achievement, relative to a group norm; other possible influences on progress being equal, a younger child will take longer to cover the same ground than an older child, so that within the age range represented here greater age becomes a positive advantage.

Recognizing intellectual differences among the pupils is obviously necessary for understanding the test scores. Approximate learning ages therefore were calculated using the IQ estimate in Table I and chronological age at the time of testing, and these *learning ages were then correlated with test averages* to yield a highly significant coefficient: r = .67 (z = 4.06, $p < .01$). Assigning a learning age in this fashion, however, implies an expectation that older, less intelligent pupils will have continued well into adolescence to make gains which will remain proportionate by some measure to those of brighter pupils in the ratio of their IQs. This is contrary to the educator's experience; there seem to be additional constricting effects on learning of low general intelligence, and when pupils having estimated IQs in the 50 to 60 range are omitted from the study group the correlation of learning age ranked against test average improves: N = 13, r = .74 (z = 4.93). (For results of an attempt to impose a graduated "IQ tax" which might compensate for the slowed mental growth of low-IQ pupils, see Appendix C.)

There were no differences in performance which could be attributed to sex differences, and differences in performance between manual and oral students can better be referred back to differences in intelligence, since in most cases relative intellectual ability was important to the decision to change over to manual instruction.

Last, to gauge the usefulness of the Peabody as a measure of language achievement compared to the instrument routinely administered in the department, pupil performance on the Peabody was correlated with performance on related-area subtests of the Stanford Achievement Tests of May, 1971—scores from approximately one month later: *test average vs. Word Meaning grade scores,* N = 12, r = .51; *test average vs. Paragraph Meaning grade scores,* r = .85. Paragraph Meaning is the more informative subtest at any of the levels of the test usually offered our pupils (Primary II, Intermediate I and II), and it is of great interest that, while no Stanford grade score below 2.0 is considered to be especially reliable, Peabody performance ranking follows that by Paragraph Meaning grade score so closely—and this, even though the pupils of the group having the most language by either measure can be adjudged according to Peabody norms scarcely to have vocabularies the size of that of an average beginning first grader.

General Conclusions: With an adapted presentation to create a fair test for pupils trained in fingerspelling or signs, the Peabody picture Vocabulary Test appears to be a suitable instrument, as it has been constructed, for measuring language achievement among the visually-oriented deaf-blind—provided, of course, that teaching to the test does not begin to occur. As with normal children, size of vocabulary seems to be good reflection of broader language skill, and if norms are developed for this population the Peabody should prove to be more useful as an early measure of language progress than, for example, the Stanford Achievement Primary II language subtests because it can be offered sooner and to pupils of more varying abilities and language attainments than standard school reading and vocabulary tests, and because it is apparently less vulnerable to testing error. The test also should be useful as a screening tool to determine when a pupil is ready to attempt other achievement tests and at what level. Results from this study suggest that a pupil scoring above 50 on the Peabody is capable of a reliable performance on the Stanford Achievement Intermediate II battery, and on Intermediate I above a score of 40. With an alternative available, it is not recommended that Primary II be used except perhaps to prepare a pupil for achievement testing when he is very near being able to offer a performance on Intermediate I; if Primary II is introduced earlier, a Peabody score of 30 seems for most pupils to be a necessary minimum.

APPENDIX A

Pupil Profiles

PL: Maternal rubella. Vision: bilateral congenital cataracts, operated; acuity of 5 - 10/40 with correction. Hearing: moderate to moderately severe loss, bilaterally. Language disorder. Transferred from school for the deaf. Progress: beginning to take social initiative, be more observant; fingerspells single words, rare short sentences; receptive vocabulary still very limited; knows numbers to 30.

RR: Unknown etiology; congenital diabetes. Vision: congenital nystagmus, diabetes retinopathy, monocular vision; acuity of 5 - 10/200 OS, light perception OD. Hearing: severe to profound loss in the better ear. Enlarged heart, obese, stunted growth. Early convulsions. Language disorder. Discontinuous schooling: began in school for the deaf, dismissed; at home several years; currently, many lengthy absences. French-speaking family. Progress: uses gestures and signs, fingerspells only a very few words; enjoys reading, where able; writes numerals to 50, makes use of numbers to 20.

DR: Maternal rubella. Vision: bilateral congenital cataracts, operated: no measure of acuity; demonstrates useful vision with correction. Hearing: profound loss, bilaterally. Language disorder. Has attended several schools. Progress: relies heavily on natural gestures, fingerspells single words and phrases; writes lists of words and phrases to express a sequence of ideas; attempts to read only with urging; has difficulty recognizing familiar words in print.

MD: Maternal rubella; mentally retarded sibling. Vision: bilateral congenital cataracts, operated; acuity of 5/40 OD, 10/100 OS, with correction. Hearing: profound loss, bilaterally. Progress: difficulty sequencing thoughts, yet can narrate in full simple sentences; often talks so quickly that speech is unintelligible; can do simple addition and subtraction within 50; beginning to understand money; very willing to learn but requires careful supervision, much repetition and regular review.

BA: One or more heritable defects; premature; possible encephalitis at age 5 or 8 months. Vision: recessively inherited retinitis pigmentosa, corneal scarring secondary to conjunctivitis at age 3 years; acuity of 10/200. Hearing: profound loss in the better ear. Cerebral palsy, believed to be a result of cerebral anoxia. Progress: fingerspells, stringing words together to express simple ideas; attends well to short sentences, repeats what is understood; knows numbers to 15.

EM: Congenital ichthyosiform erythroderma. Vision: corneal scarring secondary to conjunctivitis at age 9 months; acuity of 5/200 or less. Hearing: profound loss, bilaterally. Enlarged heart, anemic, stunted growth. Chronic skin infections; cancer of the tongue. Early training for the oral deaf. Progress: fingerspells single words and phrases, often too quickly to be understood; relies heavily on gestures; understands much of what is spelled in context, reads simplified stories; knows numbers through 30.

CT: Unknown etiology. Vision: nystagmus, diminished acuity, possible "central" component; 5/200 OU with correction. Hearing: profound loss, bilaterally. Progress: fingerspells strings of words and phrases, constructs some simple sentences, including questions; has difficulty understanding fingerspelled sentences, requiring well-elaborated explanations; reads very short, simplified stories; beginning to understand money.

BV: Maternal rubella. Vision: bilateral congenital cataracts, operated; retinal detachment OS at age 2 years, eye enucleated; monocular acuity of 5/200 with correction. Hearing: profound loss in the better ear. Progress: fingerspells simple complete sentences, ideas fleshed out through gestures and extended pantomime; reads short, simplified stories; uses numbers within 10; beginning to understand methods of measurement.

YF: Maternal rubella. Vision: rubella retinitis, nystagmus, essentially monocular vision; acuity of 20/30 with correction OD, gross form and light perception OS. Hearing: severe loss in the better ear. Probable language disorder. Transferred from school for the deaf. Progress: communicates through speech and fingerspelling, speech essentially unintelligible; except when writing letters, writes only single words; willingly reads only single sentences; second grade numberwork; careless, often unhappy and antagonistic; requires close supervision.

MS: Congenital ichthyosiform erythroderma, or a closely related condition. Vision: corneal scarring; no measure of acuity, appears to have seriously limited vision. Hearing: profound loss, bilaterally. Progress: eager to acquire new words; fingerspells words and phrases, a few short sentences; understands much in context, reads short, simple stories; uses numbers to 10, understands numbers to 20.

KR: Probable maternal rubella. Vision: bilateral congenital cataracts, operated; acuity of 20/200 with correction. Hearing: profound loss, bilaterally. Heart condition of concern. Progress: fingerspells words and phrases, occasional sentences; reads and writes on own initiative; still requires structure to understand questions, most conversational forms; writes numerals to 100, does simple addition and subtraction; beginning to understand money.

HS: Friedriech's ataxia, inherited progressive neurological disease characterized in this case by loss of vestibular function, optic atrophy, scoliosis, cardiac involvement, tremor and gradually more pronounced fine and gross movement difficulties. Vision: acuity of 5/200 OS, blind OD. Hearing: progressive deterioration, loss estimated to be very severe at last testing. Apparently normal early development;

now confined to wheelchair. Progress: sociable, enjoys talking, sense of humor; spontaneous use of new words, weak in formal grammar; reads well at early gradeschool level on own initiative and asks for explanations; understands money, basic units of measurement, does elementary multiplication and division.

HT: Inherited retinoblastoma; spinal meningitis at age 6 months. Vision: bilateral tumors, treated with X-ray; secondary cataract OU; acuity of 5/200 OD, blind OS. Hearing: severe sloping loss, bilaterally, secondary to meningitis or drugs used in its treatment. Progress: curious, wants explanations; better oral than written language ("quick to learn and to forget"), needs urging to keep up complete sentences; has read through first grade primer; does simple addition and subtraction; has some understanding of money.

LS: Premature. Vision: retrolental fibroplasia; acuity of 5/40 OD, 10/100 OS. Hearing: moderately severe sloping loss, bilaterally. Progress: tries to use complete oral and written sentences, but rushes to express ideas and often falls into pantomime; understands abstract terms fairly easily; imaginative, tries to write stories; has difficulty understanding speech; some knowledge of money.

FL: Maternal rubella. Vision: bilateral congenital cataracts, operated; acuity of 10/100 with correction OD, very little vision OS. Hearing: severe loss in the better ear; aided threshold for speech better than might be expected. Heart condition of concern. Progress: tries to speak and write complete simple sentences; uses concrete language, finds any abstract term difficult; has begun first grade primer; delivers department mail; runs classroom store; does addition and subtraction; some understanding of money.

HC: Maternal rubella. Vision: bilateral congenital cataracts, glaucoma; acuity of 5/100. Hearing: profound loss, bilaterally. Progress: uses speech and fingerspelling, absorbs vocabulary so quickly that actual understanding often obscured; with guide questions can write 4- or 5-sentence paragraphs; reads primer stories; does elementary multiplication and division; sensitive, afraid of being wrong, needs much encouragement.

JW: Premature. Vision: retrolental fibroplasia; acuity of 10/50 with correction. Hearing: profound loss, bilaterally. Educated early as a retarded child. Spanish-speaking family. Progress: speaks some compound and complex sentences, still working on parts of speech and sentence forms. Reads on second grade level, interests outstrip ability; mature personality; learning to budget money, has newspaper route, runs department errands in near neighborhood; began Spanish on own initiative to use at home.

SB: Maternal rubella. Vision: bilateral congenital cataracts; acuity of 5/30 OD, 10/100 OS, with correction. Hearing: very profound loss, bilaterally. Transferred from school for the deaf. Progress: uses what is learned but is not creative; needs help in building vocabulary, language structure usually correct; determined to use her speech, understands speech erratically; reading at second and third grade level; does simple arithmetic, needing frequent review; recently broadening understanding of cause and effect.

ME: Maternal rubella. Vision: bilateral congenital cataracts, operated; acuity of 10/40 with correction. Hearing: profound loss, bilaterally. Progress: eager to learn new words but needs much explanation; shy using speech with strangers; can write correctly when careful, often does not apply what she knows; reading in 4th grade text, attending 5th and 6th grade classes with the blind part of the day; can organize projects, budget money.

AT: Premature, cyanotic, very slow weight gain. Vision: retrolental fibroplasia, glaucoma OS, eye enucleated; borderline of legal blindness OD. Hearing: profound loss, bilaterally. Has attended several schools. Language disorder. Progress: uses simple complete sentences, tends to question repetitiously; asks about unfamiliar words, writes extended compositions; reading in second grade primer, also newspapers, short pieces independently; imaginative when involved, otherwise easily distracted, silly.

APPENDIX B

Items in Order of Difficulty

Item	*Form A Natural Rank*	*Times Known/ No. of Pupils Responding*	*Item*	*Form B Natural Rank*	*Times Known/ No. of Pupils Responding*
car	1	20/20	bus	2	20/20
baby	3	20/20	dog	4	20/20
ball	5	20/20	boat	7	20/20
cow	2	19/20	bell	9	20/20
girl	4	19/20	table	1	19/20
key	8	19/20	horse	3	19/20
drum	16	19/20	shoe	5	19/20
fan	12	18/20	ring	16	19/20
clown	7	17/20	ladder	20	18/20
can	9	17/20	kite	28	17/19
teacher	26	17/19	time	30	17/19
bat	20	16/20	finger	6	16/20
block	6	15/20	tire	19	16/20
leaf	17	15/20	snake	21	16/20
bee	21	15/20	climbing	11	15/20
envelope	33	15/19	lamp	12	15/20
chicken	10	14/20	sitting	13	15/20
blowing	11	14/20	jacket	14	15/20
skirt	14	14/20	nail	17	15/20
fence	19	14/20	children	8	14/20
pouring	23	14/20	turtle	10	14/20
digging	13	13/20	river	22	14/20
peacock	37	13/19	skiing	34	14/19
queen	38	13/19	barber	38	14/19
sewing	24	12/20	pulling	15	13/20
arrow	28	12/19	hitting	18	13/20
kangaroo	29	12/19	cone	25	13/20
coach	39	12/19	ambulance	32	12/19
picking	34	11/19	trunk	33	12/19
net	41	11/19	parachute	39	11/19
signal	49	11/17	temperature	41	11/19
catching	15	10/20	backing	24	10/20
nest	31	10/19	hook	35	10/19
twist	44	10/19	whale	43	10/19
dial	46	10/18	engineer	26	9/20

Appendix B (*Continued*)

Items in Order of Difficulty

Item	*Form A Natural Rank*	*Times Known/ No. of Pupils Responding*	*Item*	*Form B Natural Rank*	*Times Known/ No. of Pupils Responding*
building	27	9/19	tweezers	36	9/19
accident	30	9/19	rat	29	8/19
freckle	42	9/19	sail	31	8/19
eagle	43	9/19	cobweb	46	8/19
shining	45	8/19	pledging	47	8/15
yawning	47	8/18	hydrant	49	8/15
capsule	50	8/16	binocular	50	8/14
submarine	51	8/16	insect	54	9/12
bush	22	7/20	ringing	23	7/20
badge	35	7/19	cash	44	7/19
goggles	36	7/19	argument	48	6/19
whip	40	7/19	saddle	40	6/19
counter	57	7/15	walrus	60	6/11
ceremony	58	7/15	filing	61	6/11
wiener	25	6/19	peeking	27	5/19
transportation	56	6/15	wasp	37	5/19
funnel	62	6/12	captain	42	4/19
tying	18	5/20	balancing	45	4/19
caboose	32	5/19	hive	52	4/13
projector	53	5/16	reel	53	4/12
group	54	5/16	bannister	57	4/12
directing	61	5/12	globe	59	4/11
tumble	48	4/18	idol	58	3/12
thermos	52	4/16	locomotive	51	2/14
archer	66	4/11	gnawing	55	2/12
communication	65	3/11	weapon	56	2/12
tackling	55	2/16			
bronco	60	2/12			
delight	63	2/12			
lecturer	64	2/11			
pod	59	0/13			

APPENDIX C

Calculating the relation of learning age to Peabody test average with pupils having IQs in the 50-60 range, as was done in the body of this paper, not only omits more than a third of the sample, it also excludes two pupils whose language achievements are greater than might have been anticipated from their IQ estimates alone (KR, FL). A more useful approach might be to weight learning ages in such a way that the slowed mental growth of low-IQ pupils could be accounted for. Ideally, conversion figures could be developed to place a "tax" on greater intelligence; the study group was by no means large enough to attempt to work out a scale reflecting IQ changes over time, however, or for the following maneuver to be anything but suggestive. Somewhat arbitrarily, learning ages for pupils having estimated IQs in the 50-60 range were recomputed as if a chronological age of 12 years represented an absolute ceiling for mental development insofar as language learning is affected; in the 60-75 range, 14 years; in the +75 range, 16 years[1]—still, in the opinion of most psychometrists, the outside age at which one can obtain a reliable IQ. A pupil 17 years old by this method would be considered to have an adjusted learning age of 6 and his attainment might properly be compared to that of any other deaf pupil having a mental age of 6. The crudity of the method is such that it places the 17-year-old on a par with a 12-year-old also having an IQ of 50, while pupils of comparable intelligence, of course, can be distinguished in performance by age; but the slight superiority of the low IQ pupil over the younger child of the same IQ, in this group at least, does not seem in most cases to be sufficient to let him compete successfully with pupils older than at most 12 in the next range.

The resulting rank correlation of *Peabody test average with adjusted learning age* approaches that given in the body of the paper for IQs of 65 or better with learning ages not adjusted: $r = .75$ ($z = 4.5$ against $z = 4.93$). As the relation is plotted (Figure I), performances of the few children who even yet are well off the curve now need to be explained, and it happens that in each case the pupils, for various reasons, were exceptions in the classroom of which we were aware before the present testing. Of especial interest on the graph is the small size of the point gain found between the adjusted learning ages of 90 months and 150 months. This gap in performance is only partly an artifact of the method of adjusting ranking by age and IQ, and it shows up as two distinct curves when pupils' performances are graphed by unadjusted learning ages.

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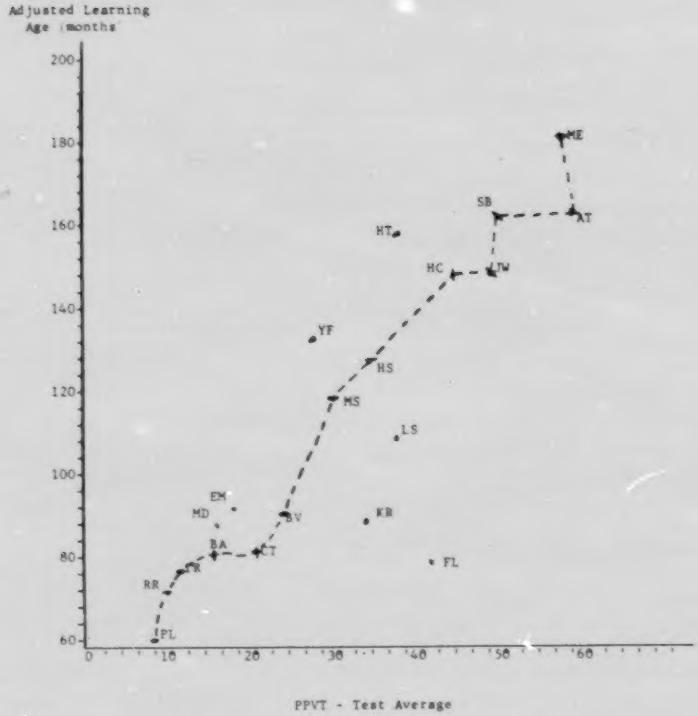
[1] There are many who believe, basing their conclusions on fairly convincing evidence from the study of hearing retardates, that a biological timetable affecting the maturation of the central nervous system imposes a clear ceiling on the number of years during which new language skill (knowledge of linguistic structure) can be acquired; beyond puberty (the time of a supposedly irreversible cerebral lateralization of language function), regardless of intellectual ability, only "horizontal" learning is expected to take place. (This would allow for further vocabulary building and the elaboration of sentence forms already understood, but not for learning for the first time to structure a question, for example.) If this were so, mental age could be related directly to language accomplishment only through age 10 or 12 for any child, and beyond that age one would be recording merely the indirect, amplifying effects of greater intelligence, those extending earlier established language habits.

A case can be made, however, for the continued acquisition of new forms and patterns well past puberty, at least among pupils who are learning language artificially. Certainly, language learning profiles of the deaf tend to flatten out rather rapidly compared to the gains of normal children (witness the low vocabulary ceiling of even the most accomplished pupils in the study population); yet, the onset of adolescence—perhaps because of its boost to the ability to abstract and generalize—often carries with it for the more sluggish, slower developing deaf-blind pupil a marked improvement in rate of progress, and in almost every instance brings about further "vertical" gains as well as the continued "horizontal" elaboration of previously acquired skills. Greater intelligence seems to go on being a direct aid in the process, relative ability to conceptualize and remember continuing to be of utmost importance, and one much-discussed implication of these observations is the possible advantage (considering the time and effort required to teach language and the deleterious effects of frustration on a pupil's interest in learning of a *later* rather than an earlier introduction to formal language instruction for the moderately to moderate-severely retarded deaf. As in education generally, the pivot of the dissent then becomes an argument propounding the benefit of early discipline.

APPENDIX C


Adjusted Learning
Age (months)
200
180
160
140
120
100
80
60
0
10
20
30
40
50
60
ME
SB
AT
HT
HC
LW
YF
HS
MS
LS
EM
MD
BV
KR
BA
CT
FL
RR
TR
PL
PPVT - Test Average

MANUAL VS. ORAL INSTRUCTION, GUIDELINES FOR CHOICE

By Miss Nan Robbins

Research in the United States suggesting the positive effect of manual instruction on language acquisition and early achievement of deaf children and the comparable or slightly better performance of children using a Combined System over children using an oral system has been reviewed by Quigley. Experience with deaf-blind students and review of their educational histories suggest that some can become linguistically competent using a tactual mode of input, that others can do so using a combination of visual and auditory avenues, while others—particularly in cases of very severe to profound hearing loss—have shown increased achievement in language as well as general improvement in self-concept when using a manual system of communication (fingerspelling). The language performance differences among the population of post-school age deaf-blind persons clearly suggest a need to attempt to better evaluate potentialities during early educational years in order to not waste precious time. Currently, we advocate early assessment of the child's behaviour in order to choose between oral and manual systems; we do not advocate a Combined System. Defense of this position cannot be presented here.

The material from which we have attempted to derive guidelines for making an early decision regarding choice between speech or fingerspelling is taken from observation of the development of deaf-blind children in an educational program which was previously strongly oral, from review of the minimal research in the field of the deaf and from some knowledge of recent results of research related to language acquisition.

The criteria below are to be applied when the child has demonstrated a mental age of at least 2½ to 3 years on performance tests involving some more purely cognitive rather than visual-perceptual skills. The checklist is designed as a guide to more objective decision making and to more definitive thinking on the subject, not as the source of a score. A "plus" rating on an item is in favor of oral instruction and a "plus" in the first category is a necessary primary qualification for an oral program. We do *not* imply that *all* behaviours must be evident for oral instruction to be undertaken.

1. Demonstrated intelligence as related to hearing level (Myklebust, 1960; Hirsh, 1966):
   - ——Performance on non-verbal tests yielding an I.Q. of 80 or preferably better.
     High Scores on:
     - ——Draw-a-Man.
     - ——Visual memory for digits.
   - ——If the measurement of I.Q. falls below 80, hearing (aided) should be a primary avenue for speech reception.
   - ——If residual hearing is present throughout the speech range, an inclination to like to listen to singing and to talking via amplification is positive (in contrast to a preference for visual patterns). (Derived from Friedlander, 1970.)
2. Previously demonstrated capacity for representational behaviour:
   - ——Use of voice to protest.
   - ——Use of pointing to communicate *to a person.*
   - ——Use of voice to call attention of a person, shortly after pointing emerges.
   - ——Reasonable clarity of gestural communication.
   - ——Personal creation of natural gestures.
   - ——Imaginary play with miniature toys: acting out personally observed experiences.
   - ——Picture recognition—in its true representation sense; looks with curiosity and understanding.
   - ——Ability to match similar pictures.
   - ——Recognition of schema of face.
3. Absence of overly strong visual imagery in *deaf* children:
   - ——Negative history for feats of exceptional visual memory or visual patterning (calendar reproduction; tendency to place everything in its place; quick notice of any new object in cluttered room; very high score on block design with low basal level; etc.) (Bruner).
   - ——Presence of strong visual patterning ability with normal, functional hearing.

4. ——?: Absence of "pathological" left-handedness (without evidence of heredity) in combination with deafness (derived from Geshwind).

5. Demonstrated social interaction:
   ——Interest in other children and attempts at interaction.
   ——Attention to faces as sources of communication cues; not in staring behaviour.
   ——Responds to direction from people.
   ——Frequently attempts to communicate with people—not just about his needs.
   ——Readily tries to imitate movement.

6. If a trial on oral language has already been made, the following factors are favorable to a choice of oral mode:
   ——After attention to speech was established, several words were responded to in a structured situation within a few weeks.
   ——After a number of words were uttered expressively in the *classroom* by the child, he began to use them spontaneously in other situations.
   ——After approximately 50 words were acquired expressively, he began to put two together to express a thought.
   ——Imitation of phonemes is fairly good.
   ——Imitation of paired phonemes is fairly good.
   ——Interest in learning to speak; puts effort into the process.
   ——Ability to use feedback—auditory, visual or tactual.

   In addition, one must also consider whether: a) speech has been made as clear to the child as possible via amplification and tactile means as well as visual, b) whether the child has been involved in a total oral atmosphere in which the adults sincerely tried to provide motivation and a model for spoken language, c) the length of time in which he has been receiving language instruction, and d) his age.

7. ——In children with severe auditory-visual deficits, absence of physical conditions inclined to be offensive to people and to result in frequently encountered aversion to contact-communication via touch, such as severe skin conditions as in congenital icthyosis erythroderma.

8. ——Absence of physical conditions interfering significantly with the production of speech—dysarthria, severe cerebellar ataxia affecting speech, conditions related to muscular dystrophy, facial nerve dysfunction, and so on.

Manual communication does not assure language acquisition nor does every deaf-blind child need to use manual communication. The ability of some deaf-blind children to acquire oral language competency has been demonstrated. Similarly, the ability of other deaf-blind children to acquire language via a manual system when oral instruction was tediously slow—if not impossible—has also been demonstrated. We are attempting to discover early which child's talents lie in which direction and to permit him that direction.

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THE EFFECT OF VISUAL DEFECTS ON RECEPTION OF COMMUNICATION/ LANGUAGE SIGNALS

By Jocelyn Record

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The Purpose of the Study

Assuming adequate language acquisition capability, language can be acquired by totally deaf-totally blind persons via an adequately received language vehicle; deaf-blind individuals have clearly demonstrated adequate tactual reception of speech (Vibration or Tadoma Method) and of the manual alphabet. However, the question of the effect of partially impaired vision in combination with profound deafness* on the appreciation of language vehicles has received little attention (see below). Similarly, the question of the need for supplementary tactile reception in these instances has been suggested,[1,2] but not actually measured. These questions become particularly important when teacher-pupil ratio, and its corollary, distance between teacher and pupil, are to be determined.

This paper was written to report the findings of a pilot study done in the spring of 1970 to consider the effects of visual pathology and the resulting corrected acuity on the visual reception of communication. An attempt was made to determine the most comfortable and optimal distances for the reception of speech signals and manual signals by each subject. Also considered, was the effect of the additional tactile information on the accuracy of speech reception. Finally, the distances at which the subject could read words on a blackboard and regular typed words on paper were noted.

Speech reading is difficult even for an intelligent deaf adult with 20/20 vision and a good knowledge of the spoken language. The following are some of the commonly recognized problems involved in speechreading.[3] The speech signals are produced very rapidly: one-twelfth to one-thirteenth of a second is the average time required per movement in ordinary speech.[4] Many speech movements are obscure, if not invisible: only 40% of spoken English is considered visible on the lips.[5] It is very difficult, if not impossible, to discriminate between certain phonemes based only on what is seen when they are formed. Finally, good lighting and a reasonably close distance between speaker and speechreader is important.

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* For this paper, the term "deaf child" will be used to refer to a child with a very severe or profound hearing loss. The child's very limited hearing is of no practical use to him in the reception of speech.

[1] Nan Robbins, "Speech Beginnings for the Deaf-Blind Child: A Guide for Parents," 1963, p. 6.

[2] Rose M. Vivian, "The Tadoma Method: A Tactual Approach to Speech and Speechreading," *The Volta Review*, December 1966, p. 735.

In general, studies have found the relationship between speechreading ability and IQ to be negligible.[6] Skill in visual synthesis is the one factor which has been found to be directly related to speechreading ability.[7] Visual synthesis skill is defined as "the ability to perceive an apparently disorganized or unrelated group of parts as a meaningful whole, or the capacity to construct a whole from incomplete or limited material."[8] It is not surprising that skill in visual synthesis is related to speechreading ability for if only 40% of spoken English is visible on the speaker's lips, the speechreader must be able to fill in sufficiently much of the remaining 60% to understand what is being said.

Since most of a deaf child's learning is visual, it is vital that he see as well as he possibly can. This is true not only for those children who fall under the broad classification of deaf-blind, but also for deaf children who have even a slight visual problem. Suchman reported the results of a study in which the vision of 103 profoundly deaf children was tested. These subjects were all the children aged 4.0 to 12.9 years attending the Speech and Hearing Center Nursery and the Kendall Elementary Schools of Gallaudet College, minus one six-year-old girl who refused to be tested.[9] Compared to the 20 to 30% visual impairment considered normal among hearing children,[10] 58% of these children were found to have some visual impairment. This 58% can be broken down: 25% had subnormal visual acuity ranging from 20/30 to 20/70, 16% had a visual anomaly not directly affecting their acuity, and 17% had subnormal acuity in addition to one or more anomolies.[11] Assuming the diagnoses to be correct, the vision of 54 of these children, or 52%, could be improved by medical techniques, but 47 of these 54 appeared to have no visual correction.[12] Without knowledge of the visual conditions, the teachers rated the schoolwork of the elementary school children in this study: "The vision-impaired children were rated as significantly less able to lipread, less cooperative, and less capable in manual tasks than children with normal vision."[13]

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[3] Mary Rose Costello, "Language Development through Speechreading," *The Volta Review*, June 1958, p. 259.

[4] Edward Bartlett Nitchie, *Lip-Reading Principles and Practise: a Hand-Book for Teachers and for Self Instruction*, 1919, p. 6.

[5] Charlotte Stafford, "Fingerspelling in the Oral Classroom," *American Annals of the Deaf*, September 1965, p. 484.

[6] Dolores S. Butt and Fred M. Chreist, "A Speechreading Test for Young Children," *The Volta Review*, April 1968, p. 232.

[7] Jay W. Sanders and Janet E. Coscarelli, "The Relationship of Visual Synthesis Skill to Lipreading," *American Annals of the Deaf*, January 1970, p. 26.

[8] *Ibid.*, p. 24.

[9] Rosslyn Gaines Suchman, "Visual Impairment Among Deaf Children—Frequency and Educational Consequences," *The Volta Review*, January 1968, p. 32.

Lawson and Myklebust found indications that ophthalmological deficiencies occurred among young school aged deaf children about twice as often as among children with normal hearing.[14] The results of their study, however, show no relationship between ophthalmological status and success in speechreading. They concluded that "the implication is that within certain degrees of visual efficiency ophthalmological factors are not highly consequential to (success in speechreading)."[15] They did not specify these degrees of visual efficiency, nor did they state the range of subnormal acuity found among the children they tested. However, probably the subjects in the present study, with the possible exception of one, had considerably poorer visual acuity than those tested by Lawson and Myklebust. With this one exception, the acuity of the subjects in this study was much poorer than that of the subjects discussed by Suchman.

Subjects

The subjects in this study were four of the older, more intelligent and cooperative children admitted as rubella children to the Deaf-Blind Department at Perkins School for the Blind. An attempt was made to arrive at a measure of visual acuity for each subject using the standard Snellen chart. The test was administered nonprofessionally and, as such, may not be entirely accurate. Each letter was pointed to individually, and some lines were repeated if the tester were uncertain of the child's response. The test was administered at 10 ft. if the subject could not see the 20/200 line at 20 ft.

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[10] *Ibid.*, p. 31.

[11] *Ibid.*, p. 33.

[12] *Ibid.*, p. 36.

[13] *Ibid.*, p. 37.

[14] Lawrence J. Lawson, Jr. and Helmer R. Myklebust, "Ophthalmological Deficiencies in Deaf Children," *Exceptional Children*, September 1970, p. 18.

[15] *Ibid.*, p. 20.

There follows some basic information about each subject. This information was gathered from the educational files, the ophthalmic records, and the results of the Snellen chart test.

Y.F.:

etiology: maternal rubella at 6 weeks
birth date: December 11, 1957
sex: male
length of pregnancy: full term
birth weight: 5 lbs. 12 oz.
defects in addition to visual and auditory: heart condition

intelligence:	CA	Test	IQ
	8-9	Ontario	88
	9-7	WISC (performance)	87

hearing: pure tone average (ASA); right: 73; left: 95
vision:

defects: mild cataract OS
microphthalmia
nystagmus
corioretinitis

onset of visual impairment: birth
acuity when admitted to Perkins (November 16, 1966): right eye with correction: 20/50; left eye not improved by glass; see hand movements at 6 inches.
most recent ophthalmologist's report of acuity (April 3, 1970): right eye: 20/50.
Snellen chart (April 9, 1970) with correction: right eye: 20/50 to 20/70; left eye: between 20/200 and 10/200.

M.E.:

etiology: rubella at 2 weeks gestation
birth date: January 30, 1954
sex: female
length of pregnancy: full term
birth weight: 5 lbs. 12 oz.
motor development: slow
defects in addition to visual and auditory: serious heart condition (successful surgery in January 1960)

intelligence:	CA	Test	IQ
	9-2	Ontario	87
	11-0	WISC (performance)	100
	15-1	WISC (full scale)	84
		(verbal)	75

hearing: profound, bilateral sensori-neural loss
vision:

defects: bilateral congenital cataracts
searching nystagmus
convergent strabismus (left eye turns)
onset of visual impairment: birth
surgery: needlings on both eyes
acuity when admitted to Perkins (September 21, 1960) with correction: OD 20/200; OS 3/200
most recent ophthalmologist's report of acuity with cataract glasses (February 2, 1968): measures at near right eye at 8 in. (reads 20/50 line easily; reads 20/40 line with hesitation); left eye (counts fingers at 4 to 5 ft. easily; at near reads 20/100 line at 6 in.).
Snellen chart (April 9, 1970) with correction: right eye: 20/100; left eye: 10/200.

S.B.:

etiology: rubella during first month of pregnancy
birth date: December 17, 1952
sex: female
length of pregnancy: delivery was 2 weeks before ETD
instruments used in delivery: forceps were used, resulting in head cuts and bruises
motor development: a little slow

intelligence:	CA	Test	IQ
	6-2	Ontario	90
	10-9	WISC (performance)	80
	12-9	Columbia	79
	16-3	WAIS	87

hearing: profound, bilateral sensori-neural loss
vision:

defects: congenital cataracts
albinism, incomplete (?)
nystagmus
convergent strabismus (right eye turns)
microphthalmia
sluggish pupils
anterior chambers perhaps a little shallow
some fine salt and pepper appearance
onset of visual impairment: birth
surgery: cataract
acuity when admitted to Perkins (November 6, 1959): OD: counts fingers at 5 ft.; OS: counts fingers at 6 ft.
most recent ophthalmologist's report of acuity (March 29, 1968) 20/200 at 8 in. on AMA chart with better eye
Snellen chart (April 9, 1970) with correction: right eye: 20/200; left eye: 20/200

H.C.:

etiology: The records state maternal rubella as the etiology. However, several factors in these records suggest that perhaps H.C. is not a "rubella baby." Three of these factors are a high birth weight, rapid early motor development, and the absence of a recorded time at which his mother had rubella. Not included above, but adding doubt to the reported etiology, is the fact that at the age of 7, he supposedly had rubella himself.

birthdate: October 28, 1958
sex: male
length of pregnancy: full term
birth weight: 9 lbs. ¾ oz.
motor development: rapid; somewhat sooner than normal

intelligence:	CA	Test	IQ
	9-7	Ontario	93+ (refused to do two sub-tests)
	10-6	WISC (performance)	107

hearing: severe, bilateral sensori-neural loss
vision:

defects: glaucoma, OU postoperative
nystagmus
convergent strabismus
corneal leukomas, bilateral (scarring) (reports differ—there is one report of congenital cataracts)
onset of visual impairment: birth
surgery: apparently had a bilateral filtering operation (January 1959)
acuity according to Eye Clinic in Washington, D.C.: right: 6/200; left: 6/200.
most recent ophthalmologist's report on acuity (September 26, 1969) with no correction: right eye: counts fingers at about 6 ft.; left eye: counts fingers at about 4 ft.
Snellen chart (April 9, 1970) without correction: right eye: 10/200; left eye: 10/100

Tests

The seven tests administered to the children are discussed below. H.C. was not given the test of speechreading the initial phonemes of monosyllabic words because he had had a limited amount of training in oral communication and because his eyes were bothering him after having taken only a couple of the tests. The other three children were given all the tests. They were given written directions for each test. These directions were supplemented by demonstration and further explanation—gestural, oral and manual.

Speechreading Isolated Phonemes

Ten phonemes were selected from the Yale Chart—five vowel sounds and five consonant sounds. The subject's hearing aid was removed so that he would have to rely almost entirely on his vision. He was seated at the desk so that he could write his response if his own speech were unintelligible. The tester stood facing the subject and made each of these sounds; usually each sound was repeated three times at each distance.

Because of his limited experience with speech and his poorer vision, H.C. was given this test differently. As each phoneme was presented, he was allowed to move forward as much as he wished and to use vibration if he wanted. Phonemes were presented first at about 2 ft.

Speechreading Initial Phonemes of Monosyllabic Words

The subject was seated at the desk without his hearing aid. He was given a large answer sheet on which there were thirty words arranged in three columns. Reading across the columns, the three words in each line sounded the same except for the initial phoneme. The task of the subject was to watch the tester carefully and then circle the word which had been spoken. The test was repeated at various distances.

Reading Isolated Fingerspelled Letters

The subject and tester stood facing each other. The tester then presented the letters of the manual alphabet one at a time in random order. The subject formed the same letter to indicate that he had perceived it correctly. The test was repeated at various distances.

Reading Fingerspelled Words

The subject and the tester stood facing each other. The tester spelled a word slowly and the subject had to spell the same word. This task included visual memory as well as acuity. The subject was presented with ten different words. Some of the words were quite easy to see, including the subject's own name. On the other hand, some of them involved little movement in going from one letter to the next and were therefore more difficult to see.

Imitating Signs and Facial Expressions

This test was administered with the tester and subject standing facing each other. Initially, the distance between them was 10 ft. The tester made a sign; the subject then imitated the sign, thereby indicating that he had perceived it correctly. Depending upon the results of the first trial, the distance between them was shortened or lengthened and the series of signs was repeated. There were three groups of signs: 1.) four involving the head or face, 2.) four using only one hand, and 3.) eleven involving both hands, but using fairly little movement.

Reading Words on Blackboard

For this test, the subject sat at a desk 10 ft. from the blackboard (except Y.F., who sat 18 ft. from the board). The subject was given a piece of paper on which he was to copy the list of five simple words and the short sentence which were on the board. These words had been written in manuscript—the capital letters were 3 in. high, the small letters 1½ in. If the subject had difficulty, the board was moved closer to him.

An additional portion of this test was administered to M.E. and S.B. to determine at what distance they could discriminate small differences in cursive writing ½ to ¾ in. in height. Sentences including "where" or "when" in which either word would make sense were presented.

Reading Regular Type (Pica)

Three simple commands were typed on a piece of paper. They were: 1.) Please stand up, 2.) Open the door, and 3.) Bring me this paper. The subject was given the paper and asked to read it. The subject fingerspelled or read aloud these commands sometimes supplemented by actions indicating comprehension of the words. The distance from his eyes at which the subject naturally held the paper was noted.

RESULTS

Speechreading Isolated Phonemes

(This table shows the percentage of phonemes read at various distances by each subject. 100% = 10/10. The phoneme was considered read if the response were correct ⅔ of the time. Except at 10 ft. and 5 ft. the first time, S.B. was presented with the phonemes only once at each distance. Therefore, she was given credit for reading a phoneme if she responded correctly that one time. The order in which the trials were presented is indicated below in parentheses.)

	10 ft.	5 ft.	2 ft.	1 ft.	vibration
Y.F.	(1) 90				
M.E.	(1) 30	(2) 50	(3) 60		(4) 90
S.B.	(5) 50	(1) 20 (4) 80	(3) 90		(2) 100
H.C.			60	80	100

As each phoneme was presented to H.C., he was allowed to move forward as much as he wished and to use vibration if he wanted. Phonemes were presented first at about 2 ft. Nine phonemes were presented three times, one only twice. Of his 29 responses, only one was incorrect. He used vibration 7/10 of the time the phonemes were first presented. Perhaps he gained confidence, or maybe he just attended better, but by the third time the phonemes were presented, he could do 60% at 2 ft., another 20% at 1 ft., and he used vibration only for the remaining 20%.

Speechreading Initial Phonemes of Monosyllabic Words

(This table shows the percentage of correct responses made by each subject at various distances. 100% = 10/10. The order in which the trials were presented is indicated below in parentheses.)

	10 ft.	5 ft.	2 ft.	vibration
Y.F.	(1) 90	(2) 70	(3) 100	
M.E.	(1) 90 (2) 100	(3) 80	(4) 100	
S.B.	(1) 60	(2) 90	(3) 90	(4) 100
H.C.	He was not given this test because his eyes were too strained.			

Reading Isolated Fingerspelled Letters

(This table shows the percentage of correct responses made by each subject at various distances. 100% = 26/26. The order in which the trials were presented is indicated below in parentheses.)

	18 ft.	10 ft.	8 ft.	6 ft.	4 ft.	2 ft.	1 ft.
Y.F.	(1) 96.2 (2) 100.0						
M.E.		(1) 96.2 (2) 92.3	(3) 92.3	(4) 88.5	(5) 96.2		(6) 100
S.B.		(1) 61.5	(2) 84.6	(3) 96.2	(4) 92.3	(5) 100	
H.C.		(1) 0.0 (of five presented)	(2) 57.7		(3) 80.8		

(H.C.'s eyes seemed to be bothering him during this test: his left eye watered, he looked at the light after every few responses, and he rubbed his left eye.)

Reading Fingerspelled Words

(This table shows the percentage of correct responses each subject made at different distances. 100% = 10/10. Because M.E. was very tired by the time she was given this test, the results at 15 ft. and the second trial at 10 ft. were obtained the following day. The order in which the trials were presented is indicated below in parentheses.)

	18 ft.	15 ft.	10 ft.	8 ft.	6 ft.	5 ft.	4 ft.
Y.F.	(1) 90						
M.E.		(2) 70 (3) 80	(1) 80 (4) 100				
S.B.			(1) 50	(2) 60	(3) 90 (4) 100		
H.C.				(1) 50		(2) 70	(3) 100

Imitating Signs and Facial Expressions

(This table shows the percentage of signs correctly imitated by each subject at various distances. 100% = 19/19. The order in which the trials were presented is indicated below in parentheses.)

	10 ft.	5 ft.	2 ft.
Y.F.	(1) 100		
M.E.	(1) 84.2 (2) 100		
S.B.	(1) 63.2	(2) 94.7	(3) 100
H.C.	(1) 55.6	(2) 73.7	(3) 84.2 to 94.7

Reading Words on Blackboard

(This table shows the distance at which each subject could copy five simple words and a short sentence written on the board in manuscript, with capital letters 3 in. high and small letters 1½ in. The second column states the distance at which M.E. and S.B. could discriminate small differences in cursive writing ½ to ¾ in. in height.)

	100% of Initial Portion	Discrimination of Small Differences
Y.F.	18 ft.	
M.E.	10 ft.	8 ft.
S.B.	10 ft.	2 ft.
H.C.	5 ft.	

Reading Regular Type (Pica)

(This table shows the distance from his eyes at which each subject naturally held a paper with three typed commands when he was asked to read it.)

	Approximate Distance between Eyes and Paper
Y.F.	5 or 6 in. from right eye
M.E.	10 in.
S.B.	6 in.
H.C.	1 in. from left eye

(This table shows the distances at which each subject got a score of 100% on five of the tests presented. * before a distance means a score of 90% was achieved at that distance, and that subject did not score 100% on that test. + before a distance means a score of 90% or better was achieved at that distance, and that distance was sufficiently greater than the distance at which a score of 100% was obtained to be worth noting. If no score as high as 90% was achieved, the highest score and the distance at which it was obtained are reported.)

Subject and Acuity in Better Eye	Isolated Phonemes	Initial Phonemes	Isolated Fingerspelled Letters	Fingerspelled Words	Facial Expressions and Signs
Y.F. 20/50 to 20/70 (corrected)	* 10 ft.	2 ft.	18 ft.	* 18 ft.	10 ft. (18 ft.?)
M.E. 20/100 (corrected)	* vibration	2 ft.	1 ft. + 10 ft.	10 ft.	10 ft.
S.B. 20/200 (corrected)	vibration + 2 ft.	vibration	2 ft. + 6 ft.	6 ft.	2 ft. + 5 ft.
H.C. 10/100 (uncorrected)	vibration		4 ft. (80.8%)	4 ft.	2 ft. (84.2-94.7%)

Discussion of Results

Two of the tests presented involved speechreading. As the distance between tester and subject was decreased, the scores on speechreading isolated phonemes improved consistently. This was not strictly true on speechreading initial phonemes of monosyllabic words although the general trend was in the same direction. Presumably the less consistent scores on the latter test were due to the fact that although the initial trial was identical for each subject, the words selected from the list for subsequent trials varied depending in part on the subject's responses on the previous trial. Because some phonemes are harder to see, as the words presented changed, the scores sometimes decreased although the distance between subject and tester decreased. It was particularly difficult to discriminate between some pairs of words: all three subjects given this test confused "shoe" and "new," and M.E. and S.B. confused "lap" and "map," "sock" and "lock," but Y.F. was given neither "lap" nor "sock." With a single exception, once a correct response had been made, that word was never read incorrectly at a closer distance.

Unexpectedly, except for S.B.'s first score at 5 ft., her scores on speechreading isolated phonemes were superior to those of M.E. at every distance. Initially, S.B. was given this test at 5 ft. and asked to write her responses. Her performance was very poor: she got only 20% correct. She partially closed her eyes when looking at the tester's face. Frequently after watching the tester's face, her eyes would roll upwards until practically none of the iris remained visible. After a few moments, the iris would come back into view, S.B. would pause and then write her response. Because this whole process seemed so difficult, it was decided to begin with vibration and have her respond with speech. In this way, S.B. obtained a score of 80% at 5 ft. Probably part of this improvement was due to practice. M.E. was given this test at 10 ft. initially and then at increasingly shorter distances. Perhaps M.E.'s scores would have been better if the test had first been administered with vibration and then at increasingly greater distances. Because of more limited experience with speech and poorer vision, H.C. was given this test differently, as explained earlier in this paper. He elected to use vibration 70% of the first time the phonemes were presented, but by the third time he used vibration for only 20%.

Clearly, tactual speechreading is very useful for the visually-impaired deaf person. On both speechreading tests, although S.B was able to get 90% correct at 2 ft. she could obtain a score of 100% only with the aid of vibration. M.E. got only 90% of the isolated phonemes correct with vibration, but she was able to get the other 10% right when that phoneme was presented consecutively with her initial incorrect response. This score shows decided improvement over the 60% she got right at 2 ft. H.C., allowed to get as close to the tester as he wanted and to use vibration if he wished, apparently felt confident to respond only after using vibration for 70% of the phonemes the first time they were presented.

The use of vibration undoubtedly helps the deaf person focus his attention on the speaker's face. It is probably particularly useful when a deaf person begins to speechread something being said by a person who is not familiar to him. Vibration is a tactual aid to the otherwise strictly visual task of speechreading. It seems reasonable that visually-impaired deaf people should be given full benefit of this aid.

Two tests involving fingerspelling were given to the subjects. With a single exception, H.C. at 4 ft., the subjects were able to read isolated letters with somewhat greater accuracy than common words at the same distance. When presented with isolated letters, M.E.'s major problem was discriminating between "p" and "q": most often she tried to make "q" be "p" which is probably reasonable considering the relative frequency of those two letters in the English language. She was really able to discriminate between them only at 1 ft. In reading fingerspelled words, certain words presented much more difficulty than others. At 18 ft. Y.F. had trouble with only the word "men." The other three subjects all had trouble with this word, too. Two other words, "cat" and "some", gave the other three difficulty also.

A score of 100% on the test involving fingerspelled words was obtained for all subjects except Y.F. His score of 90% was acquired at 18 ft. His only mistake was with the word "men" which he read first as "man" and then as "nen." In both cases he misread only one letter. Undoubtedly he would have had no trouble with this word if it had been presented again at a slightly decreased distance. He speechread 100% of the initial phonemes only at 2 ft. M.E. obtained a score of 100% at 10 ft. on both the test of reading fingerspelled words and the test of speechreading initial phonemes of monosyllabic words. On the latter test she got only 80% correct at 5 ft., and then 100% again at 2 ft. As explained previously, this was undoubtedly due to the fact that slightly different lists were presented at each trial. M.E. was not asked to read the fingerspelled words at a distance less than 10 ft., but it seems unlikely that she would have done worse since the words presented to her would have been identical to those given at 10 ft. S.B. got 100% of the fingerspelled words correct at 6 ft., but was able to get 100% of the initial phonemes correct only when she used vibration. H.C., whose eyes were too strained to take the initial phoneme test, got 100% of the fingerspelled words correct at 4 ft.

This comparison of the results of these two tests suggests that a visually-impaired deaf person can read fingerspelling at a greater distance than he can speechread. This seems logical since the hand positions are larger and more stable in time, permitting greater ease of fixation, than are the positions of the mouth. Also, all of the letters in fingerspelling are clearly visible visually, in contrast to the phonemic elements of the speech system which are only 40% visible. Some letters are more easily discriminated than others, but all can be discriminated visually if the distance between speller and reader is adjusted for the reader's visual acuity. However, the results of these two tests cannot be validly compared for several reasons. First, for the test of speechreading initial phonemes, the correct response had to be selected from three possible answers; when reading the fingerspelled words, the subject had no idea what the word was except from what he could see fingerspelled. Second, the list of words presented for speechreading initial phonemes varied from one trial to the next, but the fingerspelled words remained identical throughout all trials. Finally, although for both tests an attempt was made to present some words which could be easily read and some which were difficult, it is unknown how the words in the tests compare in difficulty or how the varying degrees of difficulty found in each test compare to those found in common connected language.

A more valid comparison can be made between the results of reading isolated fingerspelled letters and the results of speechreading isolated phonemes. In these two tests the basic elements of fingerspelling and speech were presented. The subjects had to rely on their vision with no additional contextual clues. The only fact restricting the comparison of the results of these two tests is that although all the letters of the manual alphabet were presented, only ten phonemes were included. Nevertheless, a comparison of the results was interesting. All subjects did considerably better reading single fingerspelled letters than speechreading isolated phonemes. This difference was most dramatic for subjects M.E. and H.C.

One test was given to all subjects requiring them to imitate some facial expressions and formal deaf signs. At 10 ft., Y.F. and M.E. on her second trial both imitated 100% correctly. Y.F. was given several of the more difficult signs and expressions again at 18 ft. Of the six presented to him at this distance he got 100% correct. Then, M.E. was given all but one sign at 15 ft. and she had trouble with only two of them. When one of these two was presented a second time at this distance, she imitated it correctly. S.B. got all but one right at 5 ft. and got 100% correct at 2 ft. H.C. was not tested until he got 100% correct. His highest score was 84.2% to 94.7% at 2 ft., and he partially closed his eyes at this distance. His exact score at 2 ft. cannot be determined because two of the signs he read incorrectly at 5 ft. were not presented at 2 ft.

Several specific problems were encountered during this test by two or three of the subjects. Only Y.F. clearly understood a frown the first time it was presented. Even at 2 ft., H.C. did not imitate a frown. S.B. imitated a frown at 5 ft. and M.E. did so the second time it was presented at 10 ft. Apparently it is difficult either to perceive or to imitate a frown. (This might suggest that a teacher may need to be quite dramatic when trying to discipline a student who is several feet away.) A second difficulty, encountered by all but Y.F., was perceiving repetitive motion in a sign such as "eat." Both M.E. and S.B. had trouble seeing the sign "same" as fingers rather than fists. These two subjects also waved "bye-bye" when the sign "yes" was presented.

Both Y.F. and M.E. did slightly better on the test of expressions and signs than they did on reading fingerspelled words. Both S.B. and H.C. did better reading signs than fingerspelled words at the greater distances, but as the distance decreased both of them read a greater percentage of fingerspelled words than signs. Therefore, it seems that some expressions and signs are easier to perceive than fingerspelled words, but others are harder. It is also true that although all the subjects had been exposed to both speech and fingerspelling, their exposure to signs was very minimal. They probably were not familiar with most of the signs presented on this test. Since all the subjects were undoubtedly accustomed to waving, but probably did not know the sign "yes," it is not very surprising that they made this substitution. Because of their unfamiliarity with signs, this test was perhaps more a test of vision than some of the previous ones. However, comparisons with the results of the previous tests, while interesting, cannot be considered conclusive.

The subjects in this study were asked to copy five words and one short sentence from the blackboard. This initial portion of the test involved words written in manuscript, with small letters 1½ in. in height and capital letters 3 in. high. Y.F. was able to copy this portion at 18 ft., but he partially closed his eyes and covered his left eye with his hand. M.E. had no trouble reading this at 10 ft. and could undoubtedly have done so further away had she been tested at a greater distance. S.B. also read this portion at 10 ft. successfully. H.C. read the words on the board at 5 ft., but he covered or shaded his right eye with his hand while reading them. Originally he was asked to read the board at a distance of 10 ft. He covered his right eye and partially closed his left, but could not read the words at that distance.

An attempt was made to determine the distance at which M.E. and S.B. could discriminate small differences in cursive writing ½ to ¾ in. in height. Apparently it is very difficult to tell the difference between the words "where" and "when" in sentences in which either word would make sense. M.E. was able to perceive this difference at 8 ft.; S.B. could read these sentences accurately only at 2 ft. One aspect which made this second portion more difficult was that sentences were erased and new sentences were written in the same place. This resulted in the blackboard becoming increasingly chalky, causing the difference between figure and ground to become less distinct. This meant that it was slightly more difficult to read each sentence than it was to read the previous one. Nevertheless, this is precisely the situation with which children are sometimes forced to cope daily. The number of erasures which occurred during this test was minimal compared with the number which might occur during a day in the classroom. This indicates that the use of blackboards may present problems to some visually-impaired deaf children.

Jacobs and Katz reported that visually-impaired deaf children were able to read black words shown on a white wall by an overhead projector much better than they could read words written with white chalk on a green chalkboard.[16] They presented both manuscript and cursive writing on the chalkboard, but only manuscript on the overhead projector. They did not report the size of the letters used with the overhead projector, but presumably they were equal in height to those used on the chalkboard. Also, the words shown with the overhead projector were much simpler than those presented on the chalkboard. Despite these factors which make a comparison between chalkboard and overhead projector not completely accurate, the subjects did sufficiently better with the overhead projector to be worth mentioning. Probably more important than the improved discrimination at a greater distance was the fact that apparently most of the subjects showed less strain when reading words shown by the overhead projector. An overhead projector seems to yield greater clarity than a chalkboard. According to the results of this study, teachers of visually-impaired deaf children might consider using overhead projectors instead of chalkboards whenever possible.

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[16] Judy Jacobs and Mark Katz, "A Study of the Visual Accuracy of Eight Deaf-Blind Students and the Theoretical Application of the Finding of the Study for Teachers of Partially Sighted, Hearing Impaired Children," 1971, p. 46.

Finally, one test of near vision was given to all four subjects to determine what distance from their eyes they would choose to hold a paper with regular type if they were asked to read it. Unfortunately, the subjects' near-vision acuity was not measured with a standardized test. M.E. read the typed words easily about 10 in. from her eyes. S.B. held the paper about 6 in. away. Y.F., whose good distance vision enabled him to score so well on the previous tests, held the typed words about 5 or 6 in. from his right eye. H.C. held the paper only about 1 in. from his left eye. Clearly it would be helpful for him to have large type.

Conclusions

There is a need to define "sufficient speech discrimination" and "sufficient fingerspelling discrimination." Only 40% of spoken English is considered visible on the lips. Does this mean 40% of the phonemes found in the English language or 40% of the words most often spoken or 40% of the entire English language? Also, does this mean 40% is visible only on the lips but there are also many clues from the position of the jaw, teeth and tongue, or are these clues included in the 40%? "Sufficient speech discrimination" is that percentage of phonemic information which must be received in order to enable the reader to speechread adequately. He does not have to understand every phoneme or even every word. The question is how much must he see. In order to help answer this question, connected language should be presented to the deaf person. Unfortunately, no test involving connected language was included in this study. Similarly, it is unnecessary to understand every single letter or even every word that is fingerspelled to follow what is being said. "Sufficient fingerspelling discrimination" is that percentage of fingerspelled letters which must be received in order to enable the reader to read fingerspelling adequately. Despite the fact that in general at a given distance the subjects in this study responded correctly to a higher percentage of isolated fingerspelled letters compared with their responses to the fingerspelled words presented, all but Y.F. read 100% of the words at a greater distance than they read 100% of the isolated letters. M.E.'s chief difficulty with isolated letters was discriminating between "p" and "q." This probably would seldom cause her trouble in normal communication. It remains to be determined what percentage of the letters the reader must be able to see in order to follow conversation. Probably if the fingerspelling is rapid, he must be capable of seeing more of the letters than if it is slow.

The results of this study indicate that fingerspelling is somewhat easier to see than speech. This is probably due to the fact that fingerspelling positions are larger, more stable in time, and 100% of them can be discriminated through vision alone if the distance between speller and reader is adjusted for the reader's visual acuity. A visually-impaired deaf child probably needs better visual acuity to function in an oral group than he needs to function in a manual group. In a group situation, fingerspelling would be more accurately and comfortably received than speech by both M.E. (with corrected acuity of 20/100 in her better eye) and S.B. (with corrected acuity of 20/200 in both eyes). With uncorrected acuity of 10/100 in his better eye, H.C. could not possibly function orally in a group and he would probably have considerable difficulty receiving fingerspelling in a group situation. With corrected acuity of 20/50 to 20/70 in his better eye, Y.F. could probably receive speech in a small group situation. In a larger group, he, too, would be likely to receive fingerspelling more easily than speech.

For a deaf child with corrected visual acuity of 20/100 or worse in the better eye, with nystagmus, strabismus and post-cataract vision, and with a probable etiology of maternal rubella, speechreading accurately through vision alone requires a great deal of effort. Clearly, tactual speechreading is very helpful to such a child. With the aid of vibration, S.B. and H.C. were able to improve their scores on speechreading isolated phonemes to 100%; M.E. improved her score from 60% at 2 ft. to 90% with vibration. Not only did their scores improve when they used vibration, but also they responded easily, as if the task no longer required tremendous effort.

Some signs are easier to perceive than fingerspelled words, but others appear to be considerably more difficult, at least if the person is not accustomed to sign language.

It is important to remember that distance vision and near vision are quite different. A visually-impaired person may be able to see at a distance with little difficulty, but may have trouble with close work. In such cases, sometimes better correction is needed. For example, it is possible that Y.F. would be able to read typed words further from his eye if he wore bifocals.

The specific pathologies of the eye and the resulting visual acuity combine as two determinants of what a visually-impaired person can see. Retinitis pigmentosa results in tunnel vision. Monocular vision restricts peripheral vision. People who have had cataracts removed lack accommodation. This problem can be partially alleviated by bifocals. The importance of giving visually-impaired deaf children the best possible correction for their visual problems cannot be stressed sufficiently.

From the information stated previously in this paper about the visual pathologies and the visual acuity of the four subjects in this study plus the results of their performances on the tests administered to them, one can draw the probably self-evident conclusions that a bilateral defect is worse than the same defect in only one eye, two major defects are worse than one, and finally, the more additional ocular defects present, the worse the resulting vision probably is.

One very important fact to remember when considering the results of this study is that the subjects undoubtedly performed better under strain on these tests than they could for hours every day in class.

Teachers must be as aware as possible of the vision of their students. The teacher must consider a child's vision when positioning him in relation to the teacher, another child, or some material such as a chalkboard or chart. If the teacher plans to do some group teaching, even if with only two children, he must consider the additional problems this may present to a visually-impaired deaf child. Some children may have trouble scanning to see who is talking. The children must be positioned so that they can see everyone else adequately. Maybe, when possible, the children should be allowed to position themselves. Probably a child knows better than his teacher at what distance he can see best. For example, of 29 responses on speechreading isolated phonemes, H.C. made only one incorrect response. He had been allowed to get as close to the tester as he wanted and to use vibration if he wished. There are undoubtedly a number of exceptions such as the child who refuses to use vibration even though it is very helpful to him.

Visual acuity in combination with communication mode must be considered in positioning. Two children with different visual acuity and the same method of communication need to be positioned differently within the classroom. Similarly, two children with approximately the same visual acuity and different methods of communication require different positioning.

This paper discusses the results of a small pilot study involving only four children, all of whom supposedly have an etiology of rubella. A great deal of further research is needed related to the effects of visual impairment on the learning and behavior of deaf children.

A study similar to the one reported here could yield very useful results. Such a study should use a much larger sample of the deaf-blind population. The subjects should represent different etiologies and different ocular pathologies. There should be several subjects in each of these categories so that undue emphasis will not be placed on a specific etiology or pathology when the results are interpreted.

Before the actual testing is done in a similar study, much work should be done in perfecting the tests. An attempt should be made to make the speech and fingerspelling tests of approximately equal difficulty so that the results of these tests can be compared. Similarly, the tests using an overhead projector and a chalkboard should use words of comparable difficulty. Speechreading tests should include what can be speechread. The speed at which fingerspelled words are presented should be carefully considered and then held roughly constant. Finally, in at least one test of speechreading and one of reading fingerspelling, connected language should be presented.

APPENDIX

Speechreading Isolated Phonemes

The following phonemes were presented:

oo
ee
ar
a-e
o-e

f
p
t
th[1]
sh

Speechreading Initial Phonemes of Monosyllabic Words

The following is a sample of the answer sheet for this test:

lot	hot	pot
rat	fat	sat
fun	run	sun
ran	can	man
fed	bed	red
wish	fish	dish
lock	sock	rock
lap	map	tap
pin	win	tin
blue	shoe	new

Reading Fingerspelled Words

The words fingerspelled were:

hi
fish
eat
some

cat
subject's first name
one

black
men
see

Reading Words on Blackboard

Initial portion (manuscript—small letters 1½ in. high, capital letters 3 in. high):

subject's first name
coat
boy

dog
green
The girl has a blue dress.

Additional portion (cursive writing ½ to ¾ in. high):

"Where do you go to school?"	(M.E. and S.B.)
"When do you go to church?"	(M.E.)
"Where do you live?"	(S.B.)
"When is study hall over?"	(S.B.)

Imitating Signs and Facial Expressions

The following signs and facial expressions were presented. The first four involve the head or face; the next four use only one hand; the remaining eleven involve both hands, but use fairly little movement.

head shaking no
head nodding yes
frown—angry
grin

come
eat; food
thank you
yes

school
book
break
how
sit; seat; chair
friend
work; job
alike, like, same, as
marry
stop
name

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CONTINENTAL PROGRAMS

By **Lars Guldager**

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In order to obtain an overview of deaf-blind programs in continental Europe, I wrote letters to the following countries: France, Switzerland, Austria, Finland, East Germany, West Germany, Greece, Iceland, Ireland, Italy, The Netherlands, Norway, Poland, Portugal, Spain, Sweden, Turkey, U.S.S.R., and Yugoslavia. Names of individuals, schools and associations were obtained from Dr. Edward J. Waterhouse, Perkins School for the Blind and from Miss Karen Andersen, School for the Deaf, Aalborg, Denmark. The latter had attended a recent conference on the deaf-blind in Paris and is also editor of the first European *Newsletter* for educators of the deaf-blind which is distributed to most of the agencies serving deaf-blind children in Europe. The letter written to the different agencies and schools had the following content:

> Dear Mr. ————————————:
>
> Dr. Edward J. Waterhouse has asked me to present an overview of European programs for deaf-blind children at the Fourth International Conference on the Deaf-Blind at Perkins School for the Blind, Watertown, Massachusetts in August 1971. I would like to ask for your cooperation in compiling the following data about your program:
>
> Number, age, sex of children. Courses for deaf-blindness. Number of teachers. Education of teachers. Number of teachers' aids. If possible, the mental level of children. Residential or day program. Private or governmentally supported program. Number of deaf-blind children not being served in your country. Over-all description of program for deaf-blind children from birth to maturity.
>
> If you have any slides or pictures from your program please include them; I will return them to you after the conference.
>
> I am looking forward to putting this information together from all the European programs in order to present it at the conference.
>
> Thank you very much for your cooperation. If you will not

be able to attend the conference at Perkins in August, I hope we will be able to meet sometime in the near future.

Sincerely yours,

Forty-eight letters were mailed. In some cases one or more letters were forwarded to the same person to answer. For that reason one could not expect forty-eight answers. Sixteen schools or agencies responded to my letter and gave information on their programs. The sixteen responses were received from the following countries: Switzerland, East Germany, Iceland, France, Finland, Sweden, The Netherlands, Denmark, and Spain. The returns had varying amounts of detailed information which will become clear later in this paper. I was aware of the major programs for deaf-blind children in Europe but did try to include other countries in order to see if there were any programs which were not reported in the field. Those schools or agencies which answered all my questions in full were the well-established programs. It is not the intent of this paper to present details of the different programs; some major papers are being presented from some of these schools.

NUMBER AND SEX OF DEAF-BLIND CHILDREN

Country	*Male*	*Female*	*Total*	*Population of Countries*
Spain	1	1	2	32,949,000
West Germany	49	54	103	60,842,000
East Germany	5	4	9	17,096,000
Iceland	2	4	6	203,400
Switzerland	?	?	26	6,230,000
The Netherlands	12	12	24	12,957,584
France	7	7	14	50,330,000
Finland	7	6	13	4,700,000
Sweden	?	?	37	7,978,000
Denmark	3	6	9	4,910,000
Norway	4	1	5	3,867,400

These numbers are probably not accurate. It could well be that several children are in different programs throughout Europe without being reported to this study. For instance, the author is aware of a program for deaf-blind children in Russia and that efforts have been made to establish a program in Italy.

AGE DISTRIBUTION OF THE CHILDREN

Country	*0-3*	*4-5*	*6-17*	*18+*	*?*	*Total*
Spain			2			2
West Germany	15	31	56	1		103
East Germany			7	2		9
Iceland			2		4	6
Switzerland		1	5		20	26
The Netherlands			20	3	1	24
France			14			14
Finland		6	6	1		13
Sweden	6	5	24	2		37
Denmark		4	5			9
Norway			5			5
TOTAL						248

Each age group has need of different services. Age group 0-3 is obviously in need of parent counseling, a home development program. The age group 4-5 is in need for a nursery school placement possibly in a nursery school for non-handicapped children with special help. The age group 6-17 needs a long-term program. This program could either be in a residential school or as in some instances (in the United States) in day-programs in public school setting. Some in the age group 18+ would be in need of an ongoing preparation for college but the major part of the children would be in need for a pre-vocational or vocational program. A more specific breakup in age groups is presented in charts later in this paper.

The etiology of the handicaps has been reported very incompletely. About 40 of the total 243 have been reported as being rubella children. However, incompleteness of response leads me to speculate that there may be more. The following other causes of deaf-blindness have been reported: toxoplasmosis, encephalitis, birth trauma, prematurity, Laurence-Moon-Biedl Syndrome, Rh factor, and accident.

The Teacher of the Deaf-Blind

The first deaf-blind children to be educated had private teachers. This was true with Ragnhild Kaata in Norway and Helen Keller in the United States. The first regular classes at Perkins School for the Blind had one teacher for every two children. This group of three was usually placed in an individual classroom. It is now well accepted that deaf-blind children should be taught in groups but still with a high ratio of adults to children. It is also well accepted that not all the teachers in the classroom have to be highly trained. Teachers' aids may have a wide variety of educational backgrounds.

At the Oberlinhaus, Potsdam, East Germany where nine children are in a program, there are three teachers and one teacher's aid. The teachers have a state education to be a teacher in special schools. In Finland it is reported that one child has a teacher of his own and two other children are in a group with two teachers. In one situation a child is in a school for the blind in Helsinki where he has hearing children around him with whom he can communicate. He is integrated with hearing blind children in some subjects and has his own program in language and speech, writing and arithmetic. In The Netherlands the children are divided into five groups. Group One has six children, two teachers, and five assistant teachers. Group Two has five children, two teachers, and four or five assistant teachers. Group Three has seven children, one teacher, and five assistants. Group Four has four children, one teacher, and three assistant teachers. Group Five has two children, one teacher, and one assistant teacher. A chart follows showing the relation between age, sex, mental level and the number of teachers and assistant teachers in a group. The training of teachers in The Netherlands is extensive. After the teacher has graduated from teacher training college she can apply for a job at the Instituut voor Doven. She is given the responsibility for a group of children immediately and special training takes place after school hours for teachers of the deaf. First there is one year of inservice training, then two years at a semi-university. After these three years of training, which are compulsory in order to get a life-time contract, the teacher is given the opportunity to follow for one year another specialized course on teaching deaf children. Teachers of the deaf-blind are trained as described above, they receive additional inservice training twice a week. Their practicum is supervised either by the head of the department or the director of the department of multiply-handicapped deaf children. The American Foundation for Overseas Blind had organized a nine-week full-time training course at the Instituut voor Doven for the past few years. The school year 1971-72 will give an opportunity for intensifying the inservice training program. Aside from the teaching job the new Dutch teacher will have several hours off for observation, lesson planning and formal lessons.

Nine children are in state programs for the deaf in Aalborg, Denmark. Four teachers and one kindergarten teacher work full time in the department during school hours. The teachers have their normal four years teacher training college education, two are majors in special education. They all participate in the deaf-blind course that is going to be held at the school this year from August 2 to August 15. Besides inservice training and study tours, three of the teachers and the kindergarten teacher have no special deaf-blind training. One teacher has completed the Perkins Teacher Training Course.

In the Deaf-Blind Department in Hannover, West Germany 11 children are in a program. They are being taught by eight teachers of the deaf-blind and two technical teachers. They are all civil servants. The German education is a five-year study at the University with final governmental examination either to be a teacher of the deaf or a teacher of the blind. In addition to this they receive a special inservice training course for the deaf-blind. In Spain there are two sixteen-year-old children in a program. The teacher who supervises this program has knowledge in teaching blind and deaf-blind pupils. Two assistants were hired to help her in the classroom.

In Iceland three newly found deaf-blind children are cared for in a different way. One child is in the public school system and one child has been at the school for the deaf and is taught by both a trained teacher of the deaf and a trained teacher of the blind. A third child was at the school for the deaf for a short period of time but is now at home waiting for a decision for placement for the fall. In Switzerland six children are being taught by two teachers with a diploma in special education and a course at the Instituut voor Doven, The Netherlands, one speech therapist and five teacher aids.

In Sweden the children over the age of eight are integrated into blind classes and serve individually five to ten times a week. Children at a low level are kept in homes for mentally retarded which have programs for trainable children. The teachers in the institutions are visited by home teachers for deaf-blind who give them instructions how to act with their children and also determine whether or not the children are ready to be moved to the program at Ekeskolan School.

In France it is reported the fourteen children in a program are taught by a director with an education as teacher of the deaf, one psychologist and seven teachers, three with a final examination as teachers of the deaf and four waiting to pass this examination, plus five educational specialists. In addition to that, consultant services are given both in psychiatry and pediatrics. It is not clear in the report whether the director and psychologist teach.

As can be seen in this report, there is a high teacher-child ratio. However, from the information it seems to me that most of the children reported in these programs are educable deaf-blind children. More investigation is needed, though, to make a general statement of the children's mental level in continental Europe.

The Deaf-Blind Child

The following charts give more detailed information about the children:

Institution De Larnay, France

Name	*Age*	*Sex*			
I.B.	8	F	SQ	(Vineland)	38
E.L.	9	G	SQ	(Vineland)	30
B.G.	10	G	SQ	(Vineland)	31
J.L.	7	G	SQ	(Vineland)	58
N.D.	7	F	SQ	(Vineland)	64
M.T.	12	G	SQ	(Vineland)	35
MB.B.	15	F	SQ	(Vineland)	47
Mt.S.	16	F			
L.A.	10	G			
T.O.	12	G			
P.JP	9	G	SQ		100
MI.L	17	F	SQ		70
M.M.	8	F	SQ		118
F.L.	17	F			

Hjemmet For Dove, Andebu, Norway

Name	D.O.B.	Arrived	Sight Defect	Hearing Defect	Other Defects	Causes	Communication
1.	1961	1969	Coloboma chorioidea et retinae convergeus strabismus (usable sight)	Deaf	Vitium organicum cordis Microphtalmus Abnormal small growth	Longlasting birth	Signals (Beginning Signing)
2.	1957	1964	Bilateral Cataract Blind (light Perception)	Some hearing	"Chicken Chest" Heart defect Ductus Botallo's operation	Rubella	Signals
3.	1960	1966	Hypermetropia some sight	Deaf	Little brain not developed	Unknown	Signals
4.	1955	1963	Right eye Enophthalmos (poor sight) Left eye Tris coloboma (usable sight)	Deaf	Cleft Palate (right) Harelip	Longlasting birth Blue,	Primitive Sign Language
5.	1965	1970 + 2 observation periods	Bilateral Cataract some sight	Some hearing	—	Rubella	(Beginning) Signal

STUDENTS ENROLLED IN THE DANISH DEAF-BLIND PROGRAM

D.O.B.	*Sex*	*Diagnosis*	*Vision*	*Hearing*	*Additional Handicap*	*Communication System*	*Mental Level*
1955	F	rubella	PS	HH		verbal	low educable
1955	F	rubella	PS	deaf		signs	trainable
1960	F	premature	PS	HH	severe brain damage	verbal	low educable
1962	F	rubella	blind	HH	+)	non-verbal	trainable
1962	F	rubella	PS	HH	+)	non-verbal	trainable
1964	M	rubella	PS	HH	+)	non-verbal	low educable
1964	M	rubella	PS	HH	+)	non-verbal	trainable
1964	M	Laurence-Moon-Biedl	PS	HH		non-verbal	trainable
1965	F	unknown	blind	HH		non-verbal	low educable

+) exhibits a great number of characteristics found in most rubella children: heart condition, poor eating habits, low attention span, severe mannerisms, hyperactivity, emotional problems.

ad. vision: PS-partially sighted—some useful sight in one or both eyes.

ad. hearing: HH—hard of hearing according to Danish evaluation. The children range from a 60-100 db loss and are classified as hard of hearing. Many of the children are educationally deaf.

ad. communication system: all children respond to sign language and gestures. "Verbal"—all instruction and teaching is given verbally. "Signs"—systematic signs language. "Non-verbal"—signs, gestures, pictures, a few verbal words and commands, but not enough really to call it a language.

ad. mental level: low educable—IQ. 50 and above, trainable—50 and below, but with enough capacity in order to understand and use gestures and signs.

FINLAND

Name	Age	Sex	Vision	Hearing	Additional Handicap	Placement	Comment
J	6	M	p.s.	deaf	MR	Home	
V	6	F	p.s.	deaf	MR	Institution M.R.	
J	5	M	p.s.	hard of hearing		Home	
T	5	F	p.s.	deaf		Home	
J	5	M	p.s.	deaf		Home	
J	4	M	p.s.	deaf		Home	
M	3	F	p.s.	hard of hearing		Home	
M	3	F	p.s.	deaf	MR	Institution M.R.	
R	20	M	p.s.	deaf		Vocational School	Sign language, large print.
T	13	M	p.s.	deaf	disturbed	School Teacher of his own	
O	11	F	p.s.	deaf		School for the Deaf	Sign and large print.
S	11	F	p.s.	deaf		School (one year)	School (one year)
T	11	M	Blind	hard of hearing		School for the Blind	

P.S. = partially sighted.

DEAF-BLIND CHILDREN FROM 0-8, SWEDEN

Age 0-1	*Number No Report*	*Rubella*	*Sex*	*At Home Served by Home-Teachers*	*At Pre-School for Deaf or Blind*	*Home for Mental Retarded with Pre-School*	*At Ekeskolan Pre-School*
2	5	4	–	2	–	3	–
3	1	–	–	–	–	1	–
4	1	1	m	–	–	–	1
5	4	2	–	1	1	2	–
6	4	3	1f	2	–	1	1
7	7	5	2f, 2m	1	1	1	4
8	7	5	1f, 5m	–	1	–	4+2 at School for the Blind
	29	20		6	3	8	12

DEAF-BLIND CHILDREN EKESKOLAN, OREBRO, SWEDEN

Age	*Number*	*Rubella*	*Sex*	*Language*	
				Oral	*Sign*
8	1	1	f	½	1
9	1	1	m		1
14	1	1	f	1	
15	1	1	f	1	
17	2	–	f, (m)		2
18	1	–	m	1	
21	1	–	f	1	
	8	4		4	4

INSTITUUT VOOR DOVEN DEAF-BLIND DEPARTMENT, ST. MICHIELSGESTEL, HOLLAND

Children	*D.O.B.*	*Sex*	*Mental Level*	*Number Teachers*	*Number Assistants*	*Remarks*
Group 1.						
1. c.s.	1964	F	high educable	2	5	deaf/partial s.
2. q.s.	1964	F	educable	2	5	deaf/blind
3. o.b.	1964	M	high educable	2	5	part h/part s.
4. i.m.	1963	F	high trainable	2	5	part h/part s.
5. m.a.	1964	F	high educable	2	5	deaf/part s.
6. t.f.	1964					
Group 2.						
7. i.s.	1961	F	high educable	2	4 or 5	deaf/part s.
8. l.m.	1957	M	high educable[1]	2	4 or 5	deaf/leg. blind
9. o.b.	1959	M	educable	2	4 or 5	part h/part s.
10. m.s.	1960	F	educable	2	4 or 5	part h/part s.
11. r.b.	1963	M	educable	2	4 or 5	deaf/part s.
Group 3.						
12. e.b.		M	trainable	1	5	deaf/blind
13. f.v.	1957	M	trainable	1	5	part h/part s.
14. l.k.	1954	F	low educable	1	5	part h/part s.
15. j.l.	1952	M	low educable	1	5	deaf/part s.
16. n.s.	1962	F	low trainable[2]	1	5	deaf/leg. blind
17. r.k.	1955	M	high educable[3]	1	5	
18. f.w.	1955	M	high trainable	1	5	
Group 4.						
19. c.j.		M	educable[4]	1	3	part h/part s.
20. p.g.	1951	M	high educable[5]	1	3	deaf/leg. blind
21. j.k.	1954	F	educable[6]	1	3	deaf/part s.
22. f.m.	1944	F	high educable[7]	1	3	deaf/blind
Group 5.						
23. c.e.	1956	F	high educable[8]	1	1	part h/part s.
24. a.m.	1955	F	high educable[9]	1	1	deaf/part s.

[1] severe emotional problems.
[2] will be dismissed.
[3] will be enrolled in August 1971.
[4] receives voc. training (bakery).
[5] will leave the school this year. Empl.: sheltered workshop.
[6] receives partial educ. in home-econ. Category A (= good chance for open industry).
[7] came too late to the school; emot. not suited for job.
[8 + 9] are integrated in a class with 2 other sighted deaf girls. Part. training in home-econ. and typing + business machines.

OBERLINHAUS POTSDAM'BABELSBERG, EAST GERMAN CENTER

	Deaf	*Mod. Deaf*	*Hard of Hearing*	*Hearing*
Blind		1 M (9 years)	1 F (18 years)	
Braille				1 F (14 years)
Print	3 M (1=16 years) (2=14 years)		1 F (15 years) 1 M (15 years)	1 F (18 years)

Mental Level

5 Normal Gifted Children	2 = 1st cl. 1 = 4. cl. 1 = 6. cl. 1 = 8. cl.
4 Mentally Retarded Children	1 = 1st cl. 1 = 3. cl. 2 = 5. cl.

Etiology for Deaf-Blindness

Deaf or hard-of-hearing from birth	*Deafened by*	*Blind or partially sighted from birth*	*Blinded by*
Etiology unknown			Fall and ablatio retinae (at the age of 7)
Rubella mat.		blind from birth, by operation partially sighted.	
Trauma natale	(add. Spasmus, slight)	and Myopia	
Trauma natale	Encephalitis (13 months) (mental retarded)	and blind (mental retarded) and myopia (added Poliomyelitis) (etiology unknown)	
		(Etiology unknown) add. deformed legs and mental retard. (Etiology unknown) mental retarded	
Rhesus factor	(add. Spasmus, hand)		

DEAF-BLIND CHILDREN AND ADOLESCENTS IN WEST GERMANY

Age-Group	*Girls*	*Department for the Deaf-Blind at Hannover*	*Boys*	*Department for the Deaf-Blind at Hannover*
1953	1	–	–	–
1954	1	1	–	1
1955	1	2	2	–
1956	–	–	–	1
1957	–	1	–	1
1958	–	–	–	–
1959	–	1	–	1
1960	3	1	5	–
1961	3	–	4	–
1962	5	–	2	–
1963	4	–	2	–
1964	6	1	10	–
1965	3	–	5	–
1966	6		3	–
1967	5	–	6	–
1968	4	–	3	–
1969	4	–	2	–
1970	1	–	1	–
	47	+ 7	45	+ 4
		= 54		= 49
		Total = 103		

DEAF-BLIND CHILDREN AT THE HANNOVER-KIRCHRODE, WEST GERMANY

Name	*Age*	*Vision*	*Vision Etiology*	*Hearing*	*Hearing Etiology*	*Additional Handicap*
GM	16	blind	rubella	severe hearing loss	rubella	Sudden behavior disturbances
PM.S.	16	partial vision	rubella	profound hearing loss	rubella	MR learning disability
R.H.	16	partial vision	unknown	profound hearing loss	unknown	slow learner
P.S.	15	borderline	unknown	profound hearing loss	unknown	
R.B.	14	partial vision	Diabetes	profound hearing loss	unknown	Diabetes
C.O.	13	partial vision	Rh.-factor	severe hearing loss	Rh.-factor	behavior disturbance/ learning disability
H.M.	13	blind	Meningitis	profound hearing loss	Meningitis	behavior disturbance
S.A.	12	blind	unknown	profound hearing loss	unknown	MR learning disability
M.G.	11	borderline	unknown	hearing loss	unknown	
A.K.	10	partial vision	unknown	profound hearing loss	Narcosis accident	spastic symptom learning disability
K.M.	6	borderline	unknown	severe hearing loss	unknown	spastic symptom

20% average intelligence (educable)
40% poor intelligence (educable in limited sense)
20% very poor (trainable)
20% not trainable

The last question I asked concerned residential versus day program, private or governmentally supported program, number of deaf-blind children not being served in the country, over-all description of program for deaf-blind children from birth to maturity. The best way to answer these questions will be to present each country separately.

In some cases very little except for the chart shown above was written about the programs; in that case the country will not appear in the coming paragraphs.

Switzerland

Programs for deaf-blind children have just been started in Switzerland. The number of deaf-blind children not being served is unknown. Several agencies, however, are hard at work to find all the deaf-blind children. Hubert Cardinaux has personally seen sixteen children. Six of them are at a school in Fribourg and four are enrolled in a program in Zurich. The program in Fribourg is residential. The children go home for holidays and one weekend a month. The program is private (the School for the Blind "Sonnenberg", being a private school), but the finances are given by a Federal Swiss Insurance (Eidgenössische Invaliden-Versicherung) and also they are governmentally supervised and are inspected by the inspector for special schools. There are three centers for deaf-blind children. There is a small center in Zurich, a small unit near Bern and a unit for the French-speaking deaf-blind children in the school just described in Fribourg.

Spain

The two children reported from Spain are in a residential program. This program is entirely maintained by the Spanish National Organization of the Blind. Spain has no knowledge of any deaf-blind child waiting to get into a program. The over-all philosophy in Spain is that the children attend school as soon as possible and their program is developed in accordance with their ability. It includes training for work activities, which are a continuation of the educational program.

Iceland

There is no special program for deaf-blind children in Iceland.

Only three deaf-blind children have been born in this country. The boy turned out to have so much brain damage and low intelligence that he is not at all educable and has since been in a home for retarded children. Two girls, both likely rubella children born in 1955, are blind with more or less defective hearing, turned out to be trainable children and are now in a home for trainable children. The last boy is still at the School for the Deaf.

Norway

Hjemmet for Døve was founded at Nordstrand near Oslo in 1898 by the Norwegian Lutheran Inner Mission Association under the leadership of the Reverend Conrad Luendsen. Its purpose was to take care of the hitherto neglected deaf.

In 1931 a farm, at Andebu, was bought as a second home for the deaf.

Since 1941 Hjemmet for Døve ([illegible] and Andebu) has been an independent institution direc[illegible] a board of governors, elected by the Department of Church's "Counselling Committee for the sacerdotal service of the Deaf" in Norway. It is a home for multi-handicapped deaf, including the deaf-blind, and offers training, occupational therapy and rehabilitation.

Børneafdelingen (the children's department) at Hjemmet for Døve, Andebu, was officially opened in February, 1949 with 10 children. Today there are 35 multiply-handicapped deaf from throughout Norway in residence in the school. The children live in small homes with a house-mother and her assistants. Several of the pupils have visual defects. Five of these with a severe visual defect and deafness, and other additional disorders, are placed together in *The deaf-blind group* for a common training program. They live in the home called "Midtstua". They are all functioning on low intellectual level. Close cooperation between the school and cottage personnel is achieved through a meeting once a week.

The staff members occupied with the deaf-blind group are:

- —The house-mother, and her assistant
- —2 assistants (one of them a qualified kindergarten teacher)
- —Other assistants (one specially trained for physical education)
- —2 teachers (qualified teachers of the deaf, with courses for education of deaf-blind children). Individual training.

The week-program includes:

Home program (in "Midtstua")	10 lessons
Group—program (-community—)	3 lessons
Sense—training/various activities	9 lessons
Physical training (gym, swim)	7 lessons
Free activity	3 lessons
Rhythm	1 lesson
Total	33 lessons

In addition to these children there are 6 other children at the school with severe visual defects, in different programs.

Two pupils in the deaf-blind group (girls, both Rubella) are now at homes for mentally retarded. A boy (retrolental fibroplasia) is now at a mental hospital.

In one of the homes there is a small apartment for parents coming with their deaf-blind child for observation and guidance to stay a week or two.

This evaluation service is provided by the Consultant for the Deaf-Blind in Norway, The Department for Observation and Guidance, Skødalen School for the Deaf, Oslo, and the social worker, psychiatrist and psychological consultant at Hjemmet for Døve.

The consultant for the deaf-blind has arranged meetings and courses for deaf-blind adults and two of the deaf-blind boys from the school have taken part in some of these.

Denmark

The Department for Deaf-Blind Children in Denmark is connected with the State School for the Deaf at Aalborg. The department was opened in 1965. The program is governmentally supported and offers a day program as well as residential facilities (full information can be found in "Care of the Handicapped", Contact 2). There are nine children in the program as of August 1, 1961. Six children have been taken on a trial basis, but have been transferred to mental health care after one or two years. The total number of deaf-blind children in Denmark has not been registered. There is no waiting list at the moment, but the school has home visiting contact with parents of two deaf-blind babies, who are under one year of age. Deaf-blind children can be enrolled in a program at the age of three years. Before then, the parents have normally received guidance and training through home visiting teachers. Parents' meetings are arranged twice a year, a week's duration for each. A rather impressive "toy library" has been established from which parents of deaf-blind children can borrow educational toys for a certain length of time.

Finland

Because Finland is a vastly settled country it is impossible to help the children when they are still at home. All children have a rehabilitation course with their mother or father and the counselor goes to their home now and then. When the children are ready to go to school they are placed either in the school for the retarded, school for the deaf, or the school for the blind. All the schools are residential state schools. Only one child is in a day program and that is because he lives close enough to the school so that he can go home every day.

Sweden

After the children have reached the age of eight and are on the academic level in Sweden, they are integrated into blind classes and are also given additional tutoring five to ten times a week. Children at a lower level are kept in homes for the mentally retarded which have programs for trainable children. The teachers at the residential school are visited by a home teacher for the deaf-blind who gives them instructions on how to teach these children. There are no children in Sweden receiving no training. There is a law which states that all children from seven to sixteen must have education at their respective levels. At Ekeskolan all the pupils live in small cottages with specially trained attendants. After school hours, they have free time attendants who take them out in town in order to acquaint them with the community. After the age of twenty-one, they leave the school and are served by organizations for handicapped adults.

The Netherlands

The Netherlands has one formally recognized program for deaf-blind children at the Instituut voor Doven at St. Michielsgestel. This is a private school, subsidized by the government. Children of any religion are accepted from the Netherlands or from Belgium.

Belgium has no program for deaf-blind children. The program has a residential character, some of the children go home every weekend, all of them return home every other two weeks.

After the child is referred to the school by the medical or other authorities, he is enrolled in a home training program. Parents are visited by a social worker at least once in two weeks. This social worker prepares a 5 days' evaluation period at the school. If it is likely that the child will be accepted at the age of 4, the child returns to the school one week every four to six weeks. This class facilitates the transfer from home to school at the age of 4. He then enters the group (Group 1) of pre-school deaf-blind children. He stays there until the age of 7, unless progress is poor, in that case the child can be transferred to the group of slow developing deaf-blind children (Group 3). After the age of 7 the child enters the group of children who are communicating at a fairly good level. Emphasis is put on reading and conversation. When the child reaches puberty (13/14 years) he is transferred to a group of peers. Then the program begins to offer vocational training in cooperation with the school for home economics and the school for vocational training for deaf boys. (In order to stimulate the youngsters' social maturity all take cooking and elementary housekeeping classes). For the child who progresses well, classes in the department for office preparation are accessible, as well as in the high school for deaf children. If the child is unable to follow this line, the following alternatives can be offered:

1. The child stays in Group 3 and receives a broad education in crafts, elementary housekeeping, sports (swimming) etc. The child in this section will probably be institutionalized his whole life.
2. The multiply-handicapped deaf boys who are unable to participate in the program of vocational training attend a section at the technical school where they receive an education whose goal is functioning as a skilled hand worker in society or workshop. This program which is accessible, too, for some deaf-blind boys gives a broad education in using materials, machinery etc., without the purpose of teaching a certain occupation.
3. If the school cannot offer proper training for one reason or another then the possibility exists that the pupil receives training at a sheltered workshop off campus. Every other

week the student returns to the school for a week of theoretical (language, arithmetic, social studies) schooling.

At the age of 20 the schooling-period ends, although it might happen that the young deaf-blind adult stays one or two years longer.

The social worker of the after-care period has the responsibility to find placement in industry in cooperation with the parents and the young deaf-blind man or woman himself. Others who are not capable of living completely independent lives may leave the school for an institution which has special arrangements for deaf-blind adults and whose staff receives training at St. Michielsgestel. The social care keeps in touch with the former student during his whole life and gives him help when he has run into difficulties.

There is a special organization which organizes meetings during weekends where the deaf (blind) adult can discuss his problems in society.

East Germany

According to the report from East Germany, ten children are not being served in any program but they are going to be accepted into the Oberlinhaus program next year. Service to deaf-blind children is given as early as possible. Service and advice to parents of young babies make them able to educate their babies. They are given proper training in how to help the child use the hearing aids and how to select toys. At the age of about five years the children are taken to a boarding pre-school. There they are taught self-help skills and pre-language development. The program is individually oriented. If the child is in the need for one-to-one instruction this is given. Most of the children graduating from the program at Oberlinhaus have also been able to go through the vocational rehabilitation program. Some of the training given is in a mechanical metal workshop, brush-making, caning and basket-making. The main goal for the program is to return the youngster to his family after he has been rehabilitated.

West Germany

The "Deutsches Taubblindenwerk" is an over-regional company of public service. It is the supporter of the school for the deaf-blind and has the following responsibilities:

to find and register, bring to school and educate deaf-blind children, to run a continuation school; to offer training and professional training of deaf-blind adolescents; retraining, rehabilitation and integration of deaf-blind adults; counseling and training for parents of deaf-blind children. In order to accomplish these tasks, the "Deutsches Taubblindenwerk" is building a Center for the Deaf-Blind at Hannover-Kirchrode.

The five parts of this Center have the following functions:

Part A: 8 Bungalows in each of which a small group of deaf-blind children will live and go to school.
Part B: A central atrium-building which contains the administration and conference rooms, special classrooms, rooms for medical consultation and audiometry.
Part C: Living, continuation school and professional training of deaf-blind adolescents.
Part D: One-room apartments for deaf-blind adults.
Part E: Indoor swimming pool, gymnasium and bowling alley.

Part A will be ready for occupancy at the end of August. The other building parts are planned to be ready in December. After the summer vacation, early in September, the department for the deaf-blind of the Niedersachsische Landesblindenanstalt, Hannover will be taken over too, by the Center for the Deaf-Blind.

Up to this date 103 deaf-blind children and adolescents have been reported in West Germany. At this moment only 11 of the children are in a department for deaf-blind children. The department for deaf-blind at Niedersachsische Landesblindenanstalt is governmentally supported until the end of July. The new center will be partially governmentally acknowledged, licensed, and supported.

The program for deaf-blind children provides for the following possibilities:

1. Voluntary registration of deaf-blind children by parents, doctors, public health offices, social offices, education authorities, schools for the deaf and hard of hearing, schools for the blind and visually handicapped.
2. Home visits and parent-counseling.
3. Procurement of otological, ophthalmological and pedoaudiological care.

4. Procurement of ambulant occupational and physiotherapeutical care.
5. Courses for parents at the Center for the Deaf-Blind.
6. Admission of deaf-blind children to the Center for the Deaf-Blind beginning with the age of 4 or 5 years.
7. Beginning of school at the Center for the Deaf-Blind at the age of 6 years. Nine years of compulsory education. This time can be prolonged for 3 years.
8. Three to four years of practical and theoretical professional training at the Center for the Deaf-Blind.
9. Procurement of employment in industry or in the workshops of the Association of the Blind.
10. Continuation classes at the Center for the Deaf-Blind, dependent on desire and talents.

Summary

It has been very difficult to compile the information on all of the programs for deaf-blind children in continental Europe. The reason for that is that most responses were not tackling the questions the same way. The different charts presented in this paper give an over-view of the children enrolled in the programs. However, the information on the daily work in the programs has not been described in detail; this was not the purpose of this paper nor was there complete information given by the different programs. It is interesting to note that the department and programs for deaf-blind children are placed in very many different kinds of settings. There are programs in schools for the deaf, there are programs in schools for the blind and now the newest program in West Germany is a program not connected to any existing facility for the deaf or for the blind. In one situation a child is in a program in a public school; however, it seems to me from the information given that the child is not severely handicapped.

It is up to us to communicate with each other in order to see where progress is not made. I think Europe has been able to communicate; the workshop recently held in Paris is a sign of that. Also the Newsletter *Contact* issued at the School for the Deaf in Aalborg, Denmark is going to be a link that will help communication. In the beginning of this month a two-week workshop was held at the School for the Deaf in Aalborg, Denmark for teachers of the deaf-blind from the Scandinavian countries. As Mr. Dantona described Sunday night, this country has divided the responsibility for the deaf-blind into ten parts. This is a very difficult task in Europe since all the different countries speak different languages. However, it is exciting to see that the different countries are able to get together to discuss problems although they do not use the same language for communication.

Communication, togetherness, information, are just a few ingredients that will make programs for deaf-blind children better in the future. Europe now has its own newsletter. It's hoped that the United States will in the coming year get its own newsletter. Would it be possible for those two newsletters to get together and form a newsletter that will cover most of the world?

There are several people present from the programs that I have tried to describe. I hope you have a lot of questions. I might not be able to answer any of them since most of the information given to me about the programs has been in a one- or two-page letter. However the people present from the different programs might be able to answer your questions.

SOURCES

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BRITISH PROGRAMS

By ANTHONY B. BEST

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I should like to tell you about the programmes we have by describing two children who, for various reasons, have been to several different schools, and in this way I shall be able to give some idea of the facilities available and how they differ from one another.

Jane is at present 8 years old and lives in the northwest of England, near the town of Manchester. She is one of about 320 deaf-blind children we have in the country. Until the age of two, all the children are under the care of the local health officers who are trained to look after handicapped people of all ages. At this stage specialist educational facilities are not generally available for deaf-blind children, although there is one residential nursery school for blind children with additional handicaps.

When Jane was three, she was first seen at Pathways school, of which many of you will have heard. This now incorporates a national assessment centre for deaf-blind children. Jane stayed here for ten days, her mother staying for the first two of them. The teacher spends a lot of time during the day observing the children at play and watching how they handle new equipment. A variety of tests is used with the children over the assessment period. Items are selected from tests by Gessell, Griffits Illingworth, Robbins and Vineland. There is one teacher and one assistant for the two children who are normally there at any one time. The house staff also observe the children carefully and make notes on their performance. Of course, previous handling by the parents will make a big difference to the actual level the child is working at, and so parents are invited for part of the assessment time so the staff can see how they have been handling the child. At the end of the assessment period the whole staff meet together to fill in a test form of the adapted Vineland Social Maturity Scale. This scale has items testing the level of the child's development in motor skills (climbing stairs, threading beads), manipulation (fastening buttons, etc.), social skills (toileting, hand washing, etc.) and so on. This score, together with a summary of the staff's observations and a recommended placement, are all sent back to the education authority in the child's local community and it is they who will arrange what they think is a suitable placement. It is the aim of the assessment centre to assess all the children in the country in the next few months. Children are also re-assessed where the local authorities feel that this could be useful and Jane has had three assessments here in the past five years.

In this case, she came out with a score of 76 which put her in the educable range. She listened to loud sounds (about 70 DB) and could help with dressing. It was recommended that she be placed in the local deaf school which had a nursery class for children between the ages of 3 and 5. Obviously a number of children can manage perfectly well in this type of setting and I shall not deal with these children here. It is sufficient to mention that schools for the deaf have some vision-impaired children, as the blind schools have some hearing-impaired children and both groups are adequately dealt with in these settings.

But in Jane's case she was not so lucky. When she was 5, two years after her first assessment, she was re-assessed at Pathways and she had made little progress. Her SM score had dropped from 76 to 48 which is only in the trainable range. Now it was recommended that she would probably benefit from a placement in a residential subnormality hospital, or a day centre for retarded children—a Junior Training School. Jane went to Lea Hospital near Birmingham which is unique in having a special unit for deaf-blind children, and here she was to stay for a year.

Lea Hospital has places for about 25 children in the special unit. There are some blind children as well as deaf-blind in this number. The staff, trained to look after pre-school "normal" children, and assisted by nurses, each have 5 children whom they look after during the day. They take the children off the ward for a period, to give them an individual session in the unit each day. The children are mainly low-grade trainable, scoring adapted Vineland scores of 15-70, with an average of 40.

There is emphasis on communication—instant communication it has been called. There is a great effort to give the children a method of understanding what is required of them, and later they are taught to use this method to communicate themselves. Here it is by use of signals which have been devised at the unit. Some of these, such as drink, food, go to the toilet, are used in the daily routine. Other signals are used in the learning situation. These would include signs for roll (child taps his sides), being lifted up (clap hands), being swung round, and so on. The children will learn about 10 of these signs, and this, I think, gives some idea of their level of performance. There is, of course, equipment to make the children aware of speech and respond to it, but few of the children seem to have the mental capacity to use speech as an efficient way of communicating.

Along with this training the children are taught to play with simple toys, use sand constructively (I'm sure it would be assimilated as a regular part of the children's diet if they were given the opportunity!), paint with their fingers, turn switches to make lights flash, sort out textured squares, match colours, and so on. Most of the children are not at the stage when they can understand dolls or pretend, nor are they likely to reach that stage.

This is where Jane spent a year until Mr. Southwell, the Head of the unit, was able to write in her report that Jane had acquired a complete signal system and seemed to be able to do all that was asked of her in that setting.

The parents were anxious to have her at home and she went to a day centre for retarded children for a while. However this did not really challenge her, and after a few months the local authority of Jane's town applied for a place in the Newcastle unit for deaf-blind children where I teach, and where Jane is now. We are a unit within a school for blind children, much the same as the situation here at Perkins. At present there are six children.

We visited Jane at home and in the Training Centre, and from these visits and looking at the Pathways assessments (there were 3), we decided that she could benefit from the kind of teaching we offer.

The unit is very new—it was started in September, 1970, but much of the programme is similar to those of other units. However, unlike the other units, the children are residential and so there are some features not found in other units.

The children, generally from the North of England, are resident at the school during regular school terms, and go home for the vacation. Where possible they also spend weekends at home. Five of the children are Rubella. They vary a great deal in ability from low trainable (adapted Vineland SM 20) to high educable (adapted Vineland SM 80). The amount of hearing varies from nil to a loss of about 40 DB over full speech frequency. None of the children is totally blind, but the extent of what they can see, as with what they are able to hear, depends on intelligence as well as the physical condition of the eyes or ears.

At present Jane and two other children use the simple signal system of communication and know about five signs. They eat food with a spoon and one of them is fully toilet trained. One child has gained a good grasp of language and is beginning to use two-word phrases (she is 6). She spends some time in a class in the main school where she is fitting into play activities very successfully. We are trying finger spelling, speech and signing with the other children to try to find the best system for them. They are very aware of what goes on around them, play with dolls, can dress and feed themselves fairly well, and are beginning to play with each other.

The classrooms are in a specially adapted hut, separate from the main school. The main play area has large toys (e.g. slide, see-saw), water, a carpeted "home" area. The floor is hollow to transmit vibrations. The smaller teaching room has some degree of soundproofing and has been kept plain to help the children concentrate on the work in front of them. There are also toilet and washing facilities. In addition to these rooms, the children are able to use the same gym and swimming baths as the main school, and play freely in the six acres of grounds surrounding the school.

In the classroom situation, communication is the most important skill to learn and we create as many situations as possible in which the child will want to communicate. The simple signal system that some of the children use is similar to that used at Lea Hospital. The children are given practice in listening to speech and sound vibrations but often do not respond in any way. Other children use the Systematic Sign Language and this is proving very successful. It is also used at Pathways, and will be described in the section on Pathways.

When not engaged in direct speech training the lower grade children play with a teacher or assistant with manipulative toys, toys that have lights or make noises, crayons, paints, etc. The higher-grade children work in a group at many activities (e.g., gardening, dressing-up, ball games) as well as playing with the toys. They have daily visits to local stores or the park. During the day there is one teacher with one or two assistants for the six children.

Social training (eating, dressing, washing, toileting) is of great importance as many of the children will probably learn little more than these basic skills, and so each housemother has only one child at these times. The routine is the same every day and is standardised so that the child is asked to do the same things in the same order no matter who is looking after them.

We all know that the parents of these children, as with any multihandicapped child, often need as much help and guidance as the child. Parents often stay part of the day, or overnight when they bring and call for the child. Jane's parents always stay overnight and this is a valuable opportunity to show how we handle their child, and we can also talk to the parents and answer questions.

Jane is now settled into this setting. However, her performance is not improving. She is only able to manage a few of the signs of which she was capable, she is no longer fully toileted and her SM score has continued to drop to 38. However, with a fixed routine and much repetition, we hope she will slowly improve.

Karen lives in London and here the children are luckier than in the rest of the country. There are two units attached to schools for "normal" junior children. Karen went to Heathbrook which takes children from 2-10 years, and having done well there was moved to Pathways. If she had lived in a different part of London she would have gone to the other unit for deaf-blind children—Hogarth. Both units have six children with two teachers and two assistants. At Heathbrook both teachers are trained to teach deaf-blind children, and at Hogarth the teachers have been to a regular teacher-training course. All the assistants are untrained. A working day in both units is 10:00 a.m. to 3:30 p.m. At Heathbrook, Karen was given opportunities to develop locomotor skills, occupational skills and her skills in dressing, washing, feeding, and toileting. The children are all encouraged to mix socially and to communicate their needs. Communication usually begins with body manipulation and a hand-to-hand hold. To this is also added gesture, sign, Tadoma and voice. In fact, every method is used to try to convey a wish, in the hope that only the finer and more sophisticated means will eventually be necessary. Karen, like the other children, was encouraged to use speech as in many cases children seem to have hearing which was not discovered by doctors in previous brief tests. Activities are varied in as many ways as possible, but with the realization that a great deal of repetition is needed. Music and movement, water play, use of clay, sand, paints, and other media all take their turn.

From such a medley of activity, one child at a time is taken by the teacher into a small Teaching Room. Here, greater concentration is given to Auditory Training, to Occupational skills and to show the value and pleasure that can be got from "communication." With communication, a very close relationship is developed with much physical contact. With occupational skills a lot of apparatus is "tailor made" to make the exercises more interesting and manageable for the child. Operant Conditioning plays quite a large part in the auditory training.

As both Heathbrook and Hogarth are day units, contact with the parents is made in a different way from that at Newcastle. At Heathbrook, the teacher tries to see each parent at home once a term. "Home-Unit" books, reports, letters, and telephone calls are also used to make contact. There have been "Mothers' Meetings" once a month, for the express purpose of free observation, and a general discussion on difficulties. Here they can give much mutual help. Parents are encouraged to join the National Association for Deaf/Blind and Rubella Children, and to attend the Parents' Courses and Conferences whenever arranged.

In one of the units, relations with the rest of the school are very good and much equipment is shared. In the other unit there is not much contact between unit and school, so it is impossible to say how successful it is to place a unit for deaf-blind children in a school for sighted children. However, at least one of the teachers feels it would be an advantage to be placed in a school for the blind or deaf.

Karen made good progress at Heathbrook, developing faster than the other children, and was accepted at Pathways school in March, 1971.

The programme here is more academic than at the units described and this suits the children who are of a higher academic standard. Their Social Maturity scores have a lower limit of about 70. The children are aged 5-16 and are in classes of two to five, with one teacher and one, or two, assistants for each class. Lessons tend to be in one-hour blocks, with the staff taking a different group of children for each lesson. This gives the staff a change, and helps the children learn to relate to different adults. The majority of the work is based on a theme throughout the school. Each theme lasts one term and includes such topics as food, living things, transport, communications. Each week all the children spend half a day on a visit, and this is one of the most successful parts of the programme, providing much material for further classroom work.

Karen is at present in the nursery class. Here four children are taught by one teacher and one assistant. Each day attempts to have one painting session, a physical activity (e.g., swimming, gymnastics), a concentrated academic session, and cookery once a week. At the end of one or two years in this class, the children should be ready to move up and start reading, group work, and work on formal signs.

When Karen has progressed enough she will move to one of the seven classes described. Here communication is by speech with the Systematic Sign Language, developed by Sir Richard Padget. This is a fully grammatical system which has proved a breakthrough in enabling the children to communicate with teachers and with each other.

Much of the work is visually oriented as nearly all the children have useful vision. The older children, about 12, are able to read and write words and phrases. The middle range of children, about 9, learn many things about the world around them. Although they may write few words from memory, they are able to use signs quite readily. The younger children are quite able to sort several groups of objects, engage in "pretend" play, and are beginning to use a few signs.

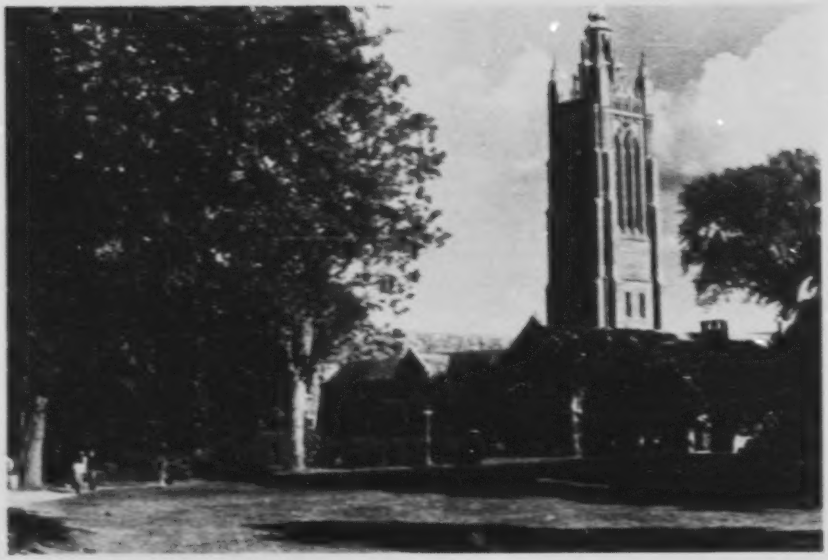
I have already said how important it is for the children to visit places outside the school, and it is worth noting that two of the oldest girls went camping in France last summer and also stayed in a hotel in Paris for a week. They managed very well in this situation, being able to make short trips out of the hotel on their own.

There is one more school which has a programme for deaf-blind children and that is New Ham School for the Deaf, just outside London. Here there are two groups of children. The younger group of four children work with one teacher and one assistant. Although they are unable to speak, they can recognize several words, for example their names, colours, furniture. In their free play they are able to play with each other and in the classroom they work on simple number problems (numbers up to 20), copy phrases, draw pictures, etc. All these children visit local shops each day and this is a great help in one of the main aims which is to make the children socially acceptable in their behavior.

The older group of children (six aged between 15-18) show how successful the teaching has been. All the children are at a different level but on average they are reading at a 9 year level, learning to tell the time accurately, can write descriptive sentences from memory. The children can be taught as a class and help each other with classroom problems as well as working in groups at cookery, gymnastics, etc.

This brief summary has mentioned many points which I realize have not been fully explained or described, but I hope it will provide some ideas for further discussion, which will be of help to you in your own settings.

Physical activities are important for deaf-blind children.



I.C.E.B.Y.

Fourth International Conference on Deaf-Blind Children

at

Perkins School for the Blind

Watertown, Massachusetts U.S.A.

August 1971

Top: Many ideas were exchanged by the delegates between sessions.

Bottom: Mr. S. O. Myers of the United Kingdom talks with Miss Pauline Moore of The American Foundation for the Blind and Dr. Mary Bauman, Executive Secretary of the Association for the Visually Handicapped.

Dr. Anna S. Elomen with Robert Dantona of the U. S. Bureau of Education for the Handicapped.

Dr. Sadako Imamura of Yokohama, Japan, with Dr. Waterhouse.

The late Mrs. Rose Vivian using the vibration method with Debbie Brumett, Mrs. Vivian was a pioneer in teaching deaf-blind children.

SOCIAL PROBLEMS OF DEAF-BLIND CHILDREN

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I. Introduction

As a foundation for my remarks concerning social problems of the deaf-blind, I would like first to consider social development, the broad area within which I intend to delineate some problems and to suggest some remedial procedures. Social development may be said to include a number of inter-related facets: self-care; locomotion; occupation; communication; socialization; self-direction. These are the categories defined by Edgar Doll for use in measuring social competence and social maturity.[1] They serve here as a frame of reference for our thinking about social development and social problems of the deaf-blind.

Since "social development" encompasses these many areas, there is freedom to consider social problems of the deaf-blind in many respects. I have selected, however, to focus upon *socialization* for discussion. Let us remember, though, that all the facets of social development are inextricably related; growth in one area often depends upon, and contributes to, growth in another. For example, socialization is vital to communication and language development and, at the same time, growth in communication and language increases the degree of socialization. One can go only as far in his social growth and development as his language ability will take him.

In considering the broad topic of socialization and the problems involved for the deaf-blind, I shall first discuss three factors which are basic to this socialization. The next topic will be self-concept, the starting point for the socialization of each individual. Then I shall give some attention to the three areas into which Doll divides his concept of socialization: inter-personal relationships; socialized play and recreation; social responsibility. Basic to all of these are social perception and social interaction, so important in socialization but so problematic for the deaf-blind. Social perception will be particularly stressed. I regret that there is neither time nor space to discuss the development of communication and language as a separate topic, for without them there can *be* no socialization, no social interaction.

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[1] Doll, Edgar, *The Measurement of Social Competence.*

In making suggestions for coping with the problems found among the deaf-blind in socialization, my emphasis will be upon what may be done by the vitally important "cottage staff" (at Perkins, the child care workers and the housemothers*) in a residential setting during the many hours when the children are not in the classroom to provide an environment which will foster social development to the extent of each child's potential. I hasten to add, however, lest the cottage staff feel too great a burden of responsibility, that in reality, we are "all in this together", child care workers, housemothers, teachers and administrators and we must pool our knowledge and our thinking and do whatever we can, at every opportunity, to alleviate the problems of our children.

II. Three Factors Basic to the Socialization of the Deaf-Blind

We should know about and *think* about three factors basic to what can be expected of a child in socialization or in any other area of his development: 1) his particular constellation of handicaps; 2) his experiential, emotional and environmental background before coming to school; 3) his developmental level in all areas of performance in terms of normal child growth and development. If we think upon these things, we shall be better equipped to work with the child understandingly and appropriately. Some suggestions:

A. *The child's handicaps:* 1. Think of the child as a *child* first, not as a handicapped child. 2. Learn, through reading, talking and observing whether the child 1) is handicapped primarily because of a serious combined impairment of vision and hearing or 2) has moderate sensory limitation in combination with other disorders or disabilities in learning.[2] Seek and make use of information regarding implications for functioning and learning. The child whose primary problem is sensory deficit and resulting lack of language is quite different from the child with moderate sensory loss combined with neurological deficit or autistic tendencies or developmental aphasia or mental retardation. Problems and appropriate approaches to remediation will vary in characteristic and significant ways.

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* Housemothers are child care workers in reality. In fact, in a certain sense, we are all child care workers. At Perkins, however, we differentiate between housemothers and child care workers and use the term "child care worker" to indicate the young women and men who work directly with the deaf-blind children in the after-school hours under the immediate supervision of the cottage housemothers.

[2] See the *Perkins Criteria for Enrollment* (1969) for a statement regarding the two educational categories of children in the Department for Deaf-Blind Children at Perkins School for the Blind.

B. *The child's background:* 1. Learn as much as you can about the life of your child up to the time he came to school or into your care. Realize the importance and the possible effect, for present functioning, of his parents' attitude toward him and of their consequent handling, stimulation and control of him. 2. Understand, with tolerance, that the frustrated expectations of parents may set up a chain reaction which increasingly interferes with a positive parent-child relationship and may carry over into the child's relationships with people in his school environment. 3. Accept the child as he is and work with him and play with him with consideration for his early emotional and environmental experiences.

C. *The child's developmental levels of functioning:* 1. Study normal child growth and development. 2. Understand that all children follow the same sequences of development. "Their rate of growth will vary; some will stay at a particular stage longer than others. Handicaps will change the way in which children learn and may limit how far they can go; but the sequence of development remains the same."[3] 3. Observe your child and determine his approximate level of functioning, for example, in eating or in play or in communication. Then, with normal sequences of development in mind, introduce appropriate activities or concepts at the right time, that is, when the child has matured to a point of readiness for them. 4. Keep in mind that the children who come to us are usually developmentally slow in all areas with a significant lag between chronological age and developmental age due to the various kinds of deprivation they may have experienced.

III. *Development of Self and Self-Concept as a Basis for Socialization*

The development of *self* and *self-concept* constitutes the very beginning of socialization. Without a self to be socialized, there can be no socialization. Self is the basic, common factor in all socialization; whatever the socialization in which the individual is involved, the self is at the center. "The self as it is perceived is the reference point for the ordering of its world and for the emergence of language."[4] Integral and related parts of the initial development of self are the development of: a sense of object permanence; body awareness; body image; self-concept. After their initial emergence, their development throughout life is an on-going process. Here we shall consider only the development of self-concept in deaf-blind children to the extent that we can isolate it and define it and we shall place emphasis upon the role which the cottage staff may play in making this on-going development a positive rather than a negative one. Self-concept, an aspect of self (or personality) is effected by the child's developing relationships with those close to him; at the same time, his relationships are effected by his self-concept.

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[3] Johnson, Carol (*Curriculum*, Chapter 8, p. 2), "The Preschool Period for Deaf-Blind Children."

"*Self-concept* is a person's feelings, knowledge and reactions toward his being—physical, emotional, social and intellectual."[5] Self-concept: is the child's feeling about himself—his feeling about his worth, about his capability in doing things, about his role in life and about his ability to perceive himself as an entity separate from the environment; is the result of the child's own activity and of his interaction with people and with the object-space world and of the attitudes and actions of other people toward his developing self; is tied to a sense of competence in dealing with the environment; is very dependent upon feed-back in social relationships; is interwoven with all aspects of socialization.

Concerning the self-concept of deaf-blind children Paisner says: "In general, it appears that the self-concepts of deaf-blind children are not comparable to those of normal children of the same chronological age, at least, in terms of behavioral manifestations of self-concept. . . . The development of self-concept seems, by these measures (behavioral manifestations), to be disrupted. . . . Behavioral manifestations include: use of body, communication that is self-expression of any sort, simple recognition of self (in mirror or photograph), confidence in self, drawings of self and people, recognition of similarities and differences between oneself and others and how one goes about relating to other people and the physical environment."[6] Some causes for the disruption of the development of self-concept in deaf-blind children are to be found in the three basic factors discussed in Section II.

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[4] Paisner, Barbara (*Curriculum*, Chapter 6), "Developing Self and Self-Concept in Educating Deaf-Blind Children."

[5] Guldager, Virginia, *Body Image and the Severely Handicapped Rubella Child*, p. 8.

A. *Type and degree of handicap:* When sensory deficit and language retardation constitute the major problem, the child is at a great disadvantage in that he cannot learn about the world and his own relationship to it and to other people in it as the normal child does, fully, through vision, hearing and language. When, in addition to sensory deficit, there is some sort of brain dysfunction, as is often the case, the development of a positive self-concept may be seriously disrupted. There may be: difficulties in perception; disturbance of body image; motor disability limiting the use of movement to define one's self; difficulty in spatial orientation; difficulty in regard to time sense; inability to understand non-verbal communication such as facial expression and gesture; problems in conceptual functioning; difficulty in symbolic ability. The possibilities of sub-normal functioning resulting from brain dysfunction are many. As a result, children are unable to relate themselves to the environment and to other people in a satisfactory way.

B. *Background:* The development of self-concept starts long before the child comes to school and is rooted in his earliest experiences. It starts in infancy and is a continuing thing, based in heredity and nurtured by the atmosphere in which the child grows. For example, if a child has been over-protected and has had everything done for him, his concept of himself will continue his dependency and his feeling of inability. If he has been helped to feel that he can do things for himself, his self-concept will be positive in quality and will be a stepping-stone for further accomplishment.

C. *Developmental Aspect:* The developmental aspect of self-concept is extremely important. Self-concept develops sequentially along with other aspects of personality. We cannot expect more of a child in terms of self-concept than he is developmentally equipped to contribute.

Some Suggestions Concerning What To Do

1. Be aware that "the developing self is a result of the genetic, physiological, neurological material brought to the situation and

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[6] Paisner, Op. cit.

of the appropriateness of the environment provided. Some types of mal-development are remedial by environmental change; others are not."[7]

2. Realize that the appropriateness of the environment is very much the concern of the cottage staff as well as of the teacher. All share the responsibility of making the school environment one which will foster the development of the child's concept of himself in as positive a way as possible; the out-of-the-classroom hours are fully as concept-building as are the classroom hours.

3. Remember that concept of self is strengthened by moving about. Locomotion emphasizes the child's separateness from his environment; motor activities cause him to feel his own movements and their consequences. Move *with* the child if he does not move alone; move with him to extend his contact and his experiences with the environment. Since the self and self-concept develop by constant interaction with others and with the physical environment, provide this interaction and assist him in it.

4. Give the child a multitude of positive experiences; they contribute wonderfully to the development of his self-concept (and of his language). Realize how influential for self-concept development every activity and experience is and, vice versa, how response to each experience is influenced by present level of self-concept development. By experiencing the world around him, he will gain security, will be motivated into further exploration and will develop a feeling of his own self as an individual.

5. Realize that a poor self-concept may be the cause of inappropriate social responses, interaction and behavior. Do everything possible to improve a child's concept of himself and as a result, hopefully, improve his behavior.

6. Help the child know that he is acceptable and that he can "do things". If he thinks that you like him and if he feels that he is capable in some ways, this will build up his concept of himself and he will have the courage to try to do more. If he feels rejected and incapable, he will probably stop trying.

7. "Closely monitor your responses to the child; responses should be clear, consistent, accepting, controlled, relevant, im-

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[7] Robbins, Nan (*Curriculum*, Chapter 1, p. 12), "Orientation to the Educational Problems and to One Solution."

mediate (and not subject to the child's whims—only to his needs) so that the child can define himself by them; try to put his confused self into a stable, responsive, communicating environment."[8]

8. Realize the role of the child's self-concept in forming satisfying relationships, in participating increasingly in social interaction and in developing socially acceptable behavior and social responsibility.

IV. *Three Areas of Socialization*

The people closest to the child while he is at school, his child care worker, his housemother and his teacher should strive to do everything possible to make the environment one which is accepting, beneficial, stimulating and "corrective" in terms of problems. Let us consider a few of the things which the cottage staff, especially, may do to help a child have satisfying, rewarding relationships, interact in play and recreation and assume social responsibility to the extent of his potential. (These three areas, as mentioned earlier, are the ones into which Doll divides his concept of socialization.)

A. *Relationships*

1. Of basic importance for the deaf-blind child is a secure, supporting and satisfying relationship with his child care worker, the person with whom he will spend many after-school hours. If you are a child care worker aiming to develop such a relationship, you must first gain the child's trust and confidence. You will do this only as you give the child affection, acceptance and approval together with consistent, understanding help when he needs it and considered freedom when the situation and his abilities permit.
   See that he has rewarding experiences through interaction with *you* as a basis for later interaction with other people when he is ready. The quality of the relationship he had with his mother will influence the ease with which he forms a good relationship with you; the quality of his relationship with you will be important to

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[8] Paisner, Op. cit.

all his later relationships. Be warm, gentle, accepting, encouraging; give him lots of attention; do things with him that he enjoys. Let him find that he can be happy and comfortable with you; this will develop, positively, his self-concept and will nurture in him the courage and the confidence to begin to move outward from himself, and from you, and gradually develop relationships with more and more people.

2. As the child is ready, help him establish relationships with people other than you and his teacher. His housemother will be busy with many children but to the extent of her available time, she will be attempting to form a positive relationship with him herself. Tell her what the child is doing, share him with her, help him become aware of her and acquainted with her in the dining room, at bedtime or wherever there is an opportunity. Assist the child to broaden his relationships by helping him know the cook in the kitchen, the man at the store and other people with whom he may come in contact. Whenever possible, draw his attention to others and to their activities.
3. Be patient and understanding as you build a relationship between you and your child and as you help him establish other relationships. Remember that this is not easy for a child if he does not see or hear people properly, if he has little or no communication or language, if he has difficulty in social perception, if he has autistic tendencies or other interfering characteristics. Slow as it may be, however, a growing ability to relate to people, both adults and peers, is indicative of increasing socialization.

B. *Play and Recreation*

In this discussion involved with socialization we shall not deal with the deaf-blind child's play when he is alone, a very important aspect of his development, but rather with his play with other children. An integral part of this topic is the factor of his relationships with other children; a child's ability to relate to other children is closely connected with how he plays with them. Play activities are indicative of ability to socialize. Here are some suggestions concerned with encouraging social play and recreation:

1. *Young deaf-blind children*
   a. Realize that before a child reaches the 18-month level of development, he is not ready for interaction with other children; his play should consist of "relationship-building" activity between him and his child care worker or his teacher. Many of our little ones enjoy gross, physical play with a trusted adult; in the process, the child becomes more aware of himself, the relationship between child and adult becomes strengthened and non-verbal communication is stimulated. In this situation, socialization takes place on a basic level between the child and a participating, communicating adult. Some children reject the physical contact involved; this, of course, lengthens the "relationship-building" period and makes it very difficult.
   b. As the normal child nears two years of age, he plays in a parallel fashion with other children. When the deaf-blind child is at a developmental level of between 18 and 24 months, therefore, his child care worker should begin to set up simple situations to encourage play with other children. (Miss Johnson, in a discussion of the young deaf-blind child's play with other children, makes many suggestions regarding play activities to be arranged at this level.[*]) Although the children will play separately at first, hopefully, awareness of—and interaction with—each other will gradually develop. Social play comes much later for deaf-blind children than for normal children.

2. *Older children*
   a. When children are able to be integrated with non-deaf-blind children, that is with blind children, or ideally, with normal children as opportunity provides, guide and control the play situations so that they are as beneficial and as much "fun" as possible for each child. As the child matures, move with him in his play as long as it is necessary, but be alert to his readiness to play with other children without the constant, close presence of an adult.
   b. When a child is ready for social interaction and recreation such as scouting, group skating, cottage parties and dances, encourage him to take these further steps in socialization and give him the support and advice he may

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[*] Johnson, Carol, Op. cit., p. 71.

need. Be present to help him "socialize" when he needs you; let him be "on his own" whenever possible. Our children, eventually, will have to live outside the walls of our schools and will not be surrounded by other handicapped children and by persons whose aim is to understand them and make life as easy as possible for them. Well-planned and supervised activities which involve and encourage interaction of deaf-blind children with normal children can be of great value for preparing our children for interaction with society in general after they leave school. (See Klein and Bownes[10] concerning socialization between deaf-blind and normal children.)

C. *Social Responsibility* (and Social Perception)

Concerning social responsibility there is relatively little which may be said in regard to deaf-blind children in a school setting in terms of the items which Doll includes in his Social Maturity Scale: Assumes responsibilities beyond own needs; Contributes to social welfare; Inspires confidence; Promotes civic progress; Shares community responsibilities; Advances general welfare. Actually, Doll says that these items are concerned with "advanced" social responsibilities so we cannot realistically expect them to apply to our children.

I mention this advanced aspect of social responsibility here, however, because it points up, all too clearly, the lack of ability of most of the *adult* deaf-blind population to assume such responsibility to any significant degree. Some of us have the privilege of knowing a few adventitiously handicapped deaf-blind adults who are amazingly "responsible" in terms of their own needs and are able, to a small degree, to "contribute to social welfare"; nevertheless, they will never completely meet the requirements of advanced responsibility as listed above. The degree to which some of them are socially responsible in these ways could be a topic for discussion during the Conference.

In this paper, I am focusing upon the social responsibility of deaf-blind children. Items concerned with "social responsibility" in a school setting might be: Acquires self-care skills; Behaves in a socially acceptable manner; Performs assigned "work" tasks, very minor ones in childhood but increasingly responsible in adolescence and moving toward some "occupational" activities which might be within the realm of possibility in adulthood. There are a number of possible approaches to a discussion of these three areas and we may become involved in them during the Conference. Here my intent is to consider them in terms of the social responsibility involved and in relation to *social perception*. There is a close relationship between social responsibility per se and the perception of it.

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[10] Klein, Mary & Bownes, Barbara, *Experiment in Social Integration,* Perkins Teacher Training Program, 1970.

"Social perception refers to the ability of the child to project himself into his environment and relate to it. *It emphasizes the ability to understand social situations, especially to comprehend what other people do and to behave appropriately.* Social perception is characterized by the child's ability to include other people in his world."[11] (The underlined sentence is the part of the definition which I am emphasizing in this section. The other two sentences, although applicable here, are even more so to the preceding sections on Self-Concept, Relationships and Play.)

The deaf-blind population is characterized by a high incidence of problems in social perception. This is not surprising in view of the multiplicity of handicaps found within the group. In relation to differential diagnosis, Myklebust describes the "characteristic social perception" of children with auditory disorders.[12] In my opinion his findings and comments are sufficiently pertinent to children with visual impairment in addition to auditory disorder to be of value to us in our effort to understand our children in terms of social perception and to foster social perception to the extent of potential. In thinking of our children, their handicaps and their social perception, I suggest that the following general statements may be made:

1. Children who are handicapped primarily because of a serious combined impairment of vision and hearing are usually superior, in terms of social perception, to children who have moderate sensory limitation in combination with other disorders or disabilities in learning. They are better able to interpret the behavior of others, to make appropriate adjustments in their own behavior and to accept social requirements in general. Although language develops slowly, they internalize their world symbolically and acquire language for use in social situations. "Symbolic behavior, itself, is a mani-

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[11] Myklebust, Helmer, *Auditory Disorders in Children*, p. 134.
[12] Myklebust, *ibid.*, pp. 134, 172, 207, 232.

festation of the internalized environment. When the child sees relationships mentally, when he 'puts things together in his mind', when he integrates sensory experiences meaningfully, he can be considered to be behaving socially; he has social perception, a concomitant of symbolic behavior."[13]

Social perception is very dependent upon vision and hearing, however; hearing what people say and visually observing what they do are vital components of the non-handicapped person's social perceiving. We must recognize, therefore, the impact of sensory impairment on social perception and realize that deaf-blind children, even if uncomplicated by other disorders, have tremendous problems in the development of social perception.

2. Children with moderate sensory limitations in conjunction with other disorders and disabilities in learning have characteristic difficulties in social perception. I shall not go into detail here but shall make only these very brief, summary statements:
   a. Deaf-blind children with the characteristics of *aphasia* are deficient in social perception mainly because of language disorder and difficulty in internalizing the environment, integrating sensory impressions and perceiving social situations correctly.
   b. Deaf-blind children with *autistic tendencies* tend to behave according to their own subjective needs and feelings and often ignore the social world entirely. "They behave substantially as though people are not present, which means that they do not use social perception."[14]
   c. Deaf-blind children with *mental retardation* as the primary handicapping factor, function, in terms of social perception, in ways consistent with their mental age and influenced by the degree of visual and auditory impairment.
   d. Deaf-blind children with psycho-neurological *learning disabilities* may present a variety of difficulties in social perception, particularly regarding the significance of basic, non-verbal aspects of daily living.[15]

The connecting idea which I wish to make clear concerning the

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[13] Myklebust, Helmer, *Auditory Disorders in Children*, p. 135.

[14] Myklebust, *ibid.*, p. 208.

[15] Myklebust, Helmer, & Johnson, Doris, *Learning Disabilities*, Chapter 8.

the characteristic social perception of the sub-groups within the social perception of our children and social responsibility is this: deaf-blind population is pertinent to their perception of their social responsibility regarding self-care, behavior and the performance of simple "work" tasks. Social responsibility implies and involves the perception of "the right thing to do" and is over and above, so to speak, the actual competence required for carrying out the responsibility in a more or less concrete way.

For example, in terms of self-care: a child, or an adult, may be competent (skilled) in handling eating utensils but if he is not making progress in terms of perceiving the social responsibilities involved with eating, such as remaining seated throughout a meal, eating a variety of food, eating neatly, using a napkin, being reasonably quiet and well-mannered, then he is not making progress in terms of his social responsibility in this area and in terms of "socialization". The same may be said if the skills of dressing are mastered but the perception is not increasingly present that clothes are not to be taken off at just any time, that we wear boots in the snow and wear a coat when the weather is cold, that some clothing is appropriate for only some situations, that there are social aspects of dressing in general.

Similar statements might be made concerning the perception of the social responsibility a) to behave in as socially acceptable a manner as possible in all areas, not only in self-care but also in play and recreation, in the routines of daily living and in all events and circumstances which involve other people and b) to assume certain responsibilities regarding "work", beginning with small tasks such as pushing in one's chair at the table after eating; hanging up one's coat after taking it off; putting toys back on the shelf; then moving on to perceiving at more advanced levels, that one should do one's homework, that good work habits in industrial arts are important, that one should do all that one can to support one's self and, eventually—if possible—contribute to the support of others. The ability of our deaf-blind children to perceive their "responsibilities" varies very much as does their ability to *act* in relation to their perception.

A few final suggestions:

1. Realize that the sub-groups of the deaf-blind, in addition to having sensory and language impairment and, probably, other disorders and disabilities, have characteristic social perception which

affects potential in terms of social responsibility, our topic in this last section, and of socialization in general. Learn about your child's limitations and abilities in social perception and adjust your approach to him accordingly, with the goal of helping him as much as possible in his perception of his environment and of his responsibilities toward it.

2. Keep in mind: a. the child's *self-concept*. Perception of self is basic to social perception. A positive self-concept is a good basis for growth in the perception that one is capable and can assume responsibility. Foster the development of a positive self-concept, as discussed earlier; b. the importance of rewarding *relationships*. If the child trusts and likes you, he is much more inclined to "do things" for you and to behave in a socially acceptable and responsible way; c. the child's *level of functioning*. Be realistic; do not expect or demand the impossible.

3. Be an understanding, supporting, guiding, interpreting "bridge" between your child and his world. He needs your help in a myriad of ways: in learning about himself; in relating to other people; in communicating; in learning language; in moving about; in learning about things and places and people; in playing; in making friends; in interacting with people; in assuming responsibility for such things as self-care; behaving properly and performing required tasks. In short, he needs your help in overcoming problems and in developing to his utmost ability in "socialization".

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TEMPERAMENT OR BEHAVIORAL STYLE OF CHILDREN WITH CONGENITAL RUBELLA

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The 1964 epidemic of rubella in the United States left in its wake an estimated 20,000 children with congenital malformations. In order to study and provide services for children in the New York area whose mothers were suspected of having had rubella during pregnancy, a multidisciplinary Rubella Birth Defect Evaluation Project was established at New York University Medical Center. Its aim was to examine the clinical manifestations of the disease and to develop appropriate management techniques. In conjunction with this project we undertook a behavioral study, supported by the Children's Bureau of the Department of Health, Education and Welfare, to determine the psychological and psychiatric sequelae of congenital rubella, and work out management with the children and their families.

We began studying the 243 youngsters in our sample when they were approximately two and a half to four years of age. In investigating the behavioral consequences of congenital rubella, we sought not only to diagnose any existing deviations, but also to identify characteristics that might contribute to the development of disturbances at a later age when the children would face more complicated demands.

Studies of both intellectually normal and mentally retarded children have demonstrated that temperament plays a significant role in the etiology of behavior disorders (Thomas et al., 1968; Chess and Korn, 1970). We therefore included in our data collection an assessment of the temperamental attributes of the rubella children to see how this dimension was implicated in their behavioral deviations.

Temperamental Attributes

Temperament may best be viewed as a general term referring to the *how* of behavior. It differs from ability, which is concerned with the *what* and *how well* of behaving, and from motivation, which seeks to account for why a person does what he is doing. When we refer to temperament, we are concerned with the way in which an individual behaves. Two children may dress or eat skillfully or throw a ball with accuracy and have the same motives for so doing. Yet, they may differ with respect to the intensity with which they act, the rate at which they move, the mood which they express, the readiness with which they shift to a new activity, and the ease with which they will approach a new toy, situation, or playmate.

Thus, temperament is the behavioral style of the individual child. It describes the categories of functioning in terms of nine categories of reactivity, independent of the content of any specific behavior. A three point scale is used for rating a child's characteristics in each category.

1. *Activity level* describes the motor component of a child's functioning and the diurnal proportion of active and inactive periods. In scoring this category we use protocol data on mobility during eating, playing, dressing, bathing, and handling, as well as information concerning the sleep-wake cycle, reaching, and crawling. A child may be rated as having a high, moderate or low activity level.

2. *Rhythmicity* describes the predictability or unpredictability the timing of functions such as the sleep-wake cycle, hunger, feeding pattern, and elimination, etc. A child may be rated as being regular, variable, or irregular.

3. *Approach-Withdrawal* is the nature of a child's response to a new stimulus, such as an unfamiliar person, food, or toy. The scores for this characteristic are approaching, variable, withdrawing.

4. *Adaptability* refers to the child's sequential responses to new or altered situations. The concern here is not with the nature of the initial responses, but with the speed and ease with which they can be modified in desired directions. A child may be either adaptive, variable, or nonadaptive.

5. *Quality of mood* describes the amount of pleasant, joyful, and friendly behavior a child displays as contrasted with unpleasant and unfriendly behavior, and crying. A child's mood may be positive, variable or negative.

6. *Intensity of reaction* is defined as the energy level of a child's

response, irrespective of its quality or direction. The ratings for this characteristic are intense, variable, mild.

7. *Threshold of responsiveness* refers to the intensity level of stimulation required to evoke a discernible response by the child to sensory stimuli, environmental objects, and social contacts. A youngster may have a high, moderate, or low threshold of responsiveness.

8. *Distractability* is based on the effectiveness of extraneous environmental stimuli in interfering with or altering the direction of the child's ongoing behavior. A child may be rated as distractible, variable, or nondistractible.

9. *Attention span and persistence* describe the length of time a particular activity is pursued and the continuation of an activity in the face of obstacles to maintaining the activity direction. Persistent, variable and nonpersistent are the ratings for this category.

Clusters of Traits

The most significant implications of the temperamental characteristics emerge when we consider them not as separate categories but as clusters of traits. Such clusters, or sets of attributes, have been found to be implicated in parent-child interactions and to be related to the development of behavior disorders.

One common temperamental constellation, or cluster, comprises regularity, positive approach responses to new stimuli, high adaptability to changes, and preponderance of positive mood of mild to moderate intensity. A child with these temperamental characteristics develops regular sleep and feeding schedules easily, takes to most new foods at once, smiles at strangers, adapts quickly to a new school, accepts most frustrations with a minimum of fuss, and learns the rules of new games rapidly. Such a youngster is aptly called the "easy child" and is usually a joy to his parents and teachers. The easy child generally adapts to the demands for socialization with little or no stress and confronts his parents with few, if any, problems in routine handling.

At the opposite end of the temperamental spectrum is the child with irregularity in biological functions, predominantly withdrawal responses to new stimuli, non-adaptability or slow adaptability to change, negative mood, and preponderantly intense reactions. These five temperamental characteristics describe what we have called the "difficult child". The difficult child manifests irregular sleep and feeding patterns, slow acceptance of new foods, prolonged adjustment periods to new routines, and frequent and loud periods of crying. Mothers find such children hard to care for. They are not easy to feed, put to sleep, bathe, or dress. New places, unaccustomed activities, and strange faces all may produce initial responses of loud protest or crying. Frustration generally produces a violent tantrum.

We found in the New York Longitudinal Study and in our behavioral study of mentally retarded children that youngsters with the cluster of temperamental traits of the difficult child accounted for a significantly high proportion of the behavior problem groups, well beyond their representation in each study sample. The specifically stressful demands for these difficult children were shown to be those of socialization, the demands for altering spontaneous responses and patterns to conform to the rules of living of the family, school, or peer group. Once these children do learn the rules, however, they usually function easily, consistently, and energetically. As a result of their temperamental characteristics, these children require particularly consistent and objective handling by their parents if maladaptive temperament-environment interactions are to be avoided.

Because of their increased vulnerability to the development of behavior disorders, we felt it would be productive to isolate those rubella youngsters with the characteristics of the difficult child for detailed study and discussion.

Through a structured interview with the mother (or another person responsible for the youngster's daily activity) we obtained a picture of each child's temperament and of undressing, eating, soiling and wetting, bathing and washing, sensory and neuromuscular activity, playing, meeting new people and new situations, discipline, illness, verbalization, and crying.

Each descriptive item was scored on a three-point scale, with the first scale point in each category assigned the value 0, the second rating 1 and the third rating 2. A numerical score was then derived to describe the child's temperament in each category.

The Difficult Child

Since we were particularly interested in the cluster of traits describing the difficult child, because of their relationship to the development of behavior disorders, we focused on their distribution among the rubella children. We used the *median* scores of the NYLS children on each of the five crucial temperamental traits (rhythmicity, adaptability, approach/withdrawal, intensity, and mood) as criteria for scoring. Any rubella child whose score for one of these traits fell between this criterion point and the vulnerable extreme was considered to have a "sign" of the difficult child. For example, any child whose score in rhythmicity was between the NYLS median and the polar extreme irregularity was considered to have this temperamental sign of the difficult child.

The frequency with which the number of signs of the difficult child were found became important when it was related to the incidence of behavior disorder (Table 1) in the rubella children.

TABLE 1

Number of Signs and Number of Rubella Children with and without Psychiatric Disorder

Number of Signs of the Difficult Child	*No Psychiatric Disorder (N=117)*		*Psychiatric Disorder (N=110)*	
	N	*%*	*N*	*%*
5	6	31.6	13	68.4
4	11	25.6	32	74.4
3	17	44.7	21	55.3
2	27	50.0	27	50.0
1	35	74.5	12	25.5
0	21	80.8	5	19.2

Here we find some particularly striking and significant differences with respect to the children with the maximal or minimal number of signs. Children with two or three signs do not show a distribution among the groups with or without disorder beyond that which would be found by chance. By contrast, almost three-fourths (72.6%) of the youngsters with four or five signs of the difficult child had behavior disorders, and slightly more than three-fourths (76.7%) of the youngsters with zero or one sign had no psychiatric disorder. It thus appears that four or five signs found in combination may be taken as predictive of a certain degree of vulnerability to maladaptive development in these rubella children. Although vulnerability does not constitute inevitability, special handling that recognizes and deals effectively with these "difficult" patterns is likely to be required in order to avoid disorders. On the other hand, while having at most one sign of the difficult child seems to imply the least risk for the development of a behavior disorder, it does not guarantee immunity. Nevertheless, when the so-called "easy children" found in this group show maladaptation, one would have to expect that environmental stress was either very great or of a kind most abrasive to a specific temperamental characteristic. It will be interesting, if follow-up study is done, to see what the psychiatric outcome is in those difficult children now without behavioral symptoms when they are confronted with the greater demands for higher-level functioning that accompany school age. In this way we may be able to establish, with increased reliability, the predictive value of these temperamental signs.

Temperament and Physical Defects

As can be seen from Table 2, four or five signs of the difficult child were found in the rubella children with physical defects three times more often than they were in physically intact rubella youngsters (32.0% against 10.2%). The reverse pattern obtains in the case of zero or one signs, although somewhat less dramatically. Here, twice as many children with no defects are temperamentally easy when compared to youngsters with defects. The differences between the groups with respect to the incidence of two and three signs are not significant. Thus, in this sample, there does appear to be a relationship between temperament and the presence of physical defect. Damaged youngsters are more frequently found to be difficult, and undamaged children more frequently found to be easy than random distribution of these characteristics would lead one to expect. If children with four and five signs are considered

TABLE 2

Frequency of Concurrent Signs of the Difficult Child in Rubella Children with or without Physical Defects (N=227)

Number of Signs	*Rubella Children with No Defects*		*Rubella Children with Defects*	
5	3	(6.1%)	16	(9.0%)
4	2	(4.1%)	41	(23.0%)
3	6	(12.2%)	32	(18.0%)
2	12	(24.5%)	42	(23.6%)
1	14	(28.6%)	33	(18.5%)
0	12	(24.5%)	14	(7.9%)
Total	49	100%	178	100%

at high risk for the development of behavior disorders and children with zero or one sign are considered at low risk, the implications are highlighted.

TABLE 3

Defects and Percentage of Children at Risk for Behavior Problem Development

	High Risk—4-5 signs	*Low Risk—0-1 signs*
Children with Defects	54.8%	45.2%
Children without Defects	16.1%	83.9%

As Table 3 indicates, somewhat more than half of the children with defects are at high risk for the development of behavior problems, whereas only about one-sixth of the children without defects are at a high risk. These data thus support the findings reached in all our analyses—no matter what dimension is being investigated, the handicapped rubella child must be considered particularly vulnerable to maladaptive psychological development, and handling must be geared to avoiding the actualization of this risk.

Temperament and Child-Care Practices

Our data indicated that individuality in the response of different children to child-care practices is related to temperamental characteristics as well as to the manner in which parents and teachers apply these practices. It is now of interest to look at some of the temperamental attributes separately in terms of their implications for handling techniques in school and at home.

Approach-Withdrawal

A child with high approach responds with positive interest to a new teacher, a new classroom, a new learning procedure. A child with high withdrawal, who warms up slowly, typically pulls away from changes in his familiar surroundings, including instruction.

An intellectually normal child may erroneously appear to be incapable of grasping a new learning task, when he is in fact demonstrating his need to familiarize himself with the novel situation before becoming productively involved. This factor is perhaps even more crucial for a handicapped youngster, whose pace of mastery is slow at best. If the need for such a familiarization period is not taken into account, the teacher or the parent may mistakenly assume his learning capacity to be lower than it actually is, or may suspect oppositional motivation where it either does not exist or has come about through secondary demoralization.

Intensity

An intense child is either terribly disappointed or exuberantly joyful; mild reactions are few. The emotions of the mild child, on the other hand, are difficult to judge from his facial expression or other overt behavior. Nevertheless, teachers in the classroom must utilize a child's intensity of reactivity as a primary method of knowing when they have engaged his attention. The intensely reacting child is prone to be misread, since his reactions are not true indices of either deep commitment or deep aversion. The vigor of mood expression also becomes a stimulus to other children, creating problems of classroom management.

Quality of Mood

A youngster's overall mood is often a determining factor in the parents' or teachers' ability to accept with equanimity his other problem characteristics. While trying to be absolutely objective, a parent finds it easier to tolerate intrusive behaviors in the home from a cheerful, friendly child than from one who appears angry and unhappy most of the time. The pleasant child who wanders about the house can be redirected pleasantly by the parent, even if the youngster intrudes into the activity of others, asks repetitive questions, or demands excessive individual involvement. The irritable, fussy child who carries out identical actions is much more likely to evoke annoyance from the parent, thus reinforcing his apprehensive view of the world as a threatening place.

Distractibility

A distractible youngster's attention is constantly being drawn to stimuli which are peripheral to classroom instruction and procedures: a visitor going down the corridor, a question asked by another child, a classmate walking down the aisle. Such a youngster hears only a part of what is said to him and explanations sufficient for the major portion of the class may be ineffective for him. To admonish such a child to pay attention is like telling a short child to add several inches to his height. The need is to instruct him in a manner effective for him: to repeat, to regain attention.

If, as is frequently the case, distractibility is joined with high activity level and short attention span, it is all the harder to find effective instructional techniques that can tap the youngster's highest learning capacity.

Attention Span and Persistence

The ability to become engaged in productive activity for long periods of time, to persist in returning to the task even though distracted, is indispensable for learning. A mentally retarded child may, however, become engaged in an unproductive way. Short attention span and low persistence in the retarded child are particularly difficult problems, since the child withdraws his attention from a topic before he has made significant progress in mastering it.

In no instance is a consideration of temperament alone or environment alone sufficient to understand the child's functioning, whether in his response to child-care practices, the evaluation of specific personality characteristics, functioning in school, or the development of behavior problems. Rather, it appears that behavioral normality as well as behavioral disturbance is the result of the interaction between a child with a given patterning of temperament and significant features of his developmental environment. Influential environmental factors include intrafamilial as well as extrafamilial circumstances such as school and peer group. In this sample, additional special factors such as brain damage or physical abnormality also interacted with temperament and environment to produce deviations in behavioral development.

Although their levels of intellectual development and physical competence will be crucial factors in the ability of these rubella children to learn, both at home and in school, their individual temperamental styles cannot be overlooked. For in order appropriately to tailor handling or teaching techniques to meet the needs of the youngster, his specific behavioral style must be identified and recognized as an integral part of the learning process.

PARENT COUNSELLING

By Mrs. Margaret D. Brock

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If I have understood the purpose of this session on parent counselling correctly, it is to exchange ideas on our approach to this vast subject, to agree on essentials, and possibly to formulate a pattern of counselling, though I doubt if this is possible in a situation of such complexity in which every family presents a different situation from every other one.

So, from the experience of sixteen years of visiting families of deaf/blind children in their homes, I propose outlining briefly what I believe to be first essentials, and then I hope we can discuss the many different aspects of help required and help available.

The Association I represent is the National Association for Deaf/Blind and Rubella Children, of which there are three founder-members here today. Sixteen years ago about seven parents of deaf/blind children were put in touch with each other, and because of the mutual help and comfort we found from shared experience, we gradually built up an organization of parents, doctors, teachers and welfare workers which has acted as a pressure-group on authority and has accumulated a mass of information and knowledge about the many problems of "handicapped families" which the advent of rubella children causes.

The Association hears of rubella children from a great many different sources, and we feel that as soon as possible it is essential to go and visit the family in their home to offer shared experience and the knowledge of where to seek help as a first step towards the adjustment of life families will have to make.

It is essential to make a fairly long first visit, as the child you have come to see is nearly always presented at his or her best at first, and only after a while relapses into the habits and perhaps unacceptable behaviour that parents are trying to hide, and you are expecting. For this reason I nearly always take photographs of Christopher (my 24-year-old son) when he was a baby, not smiling gently and looking at his toys, but banging his head or scowling—how I wish we had some of him throwing food out of a spoon and bellowing! Once parents realise that you really *do* understand some of their problems, simply because you have faced them all yourself and come through them somehow, they relax, and so will the rest of the family, and they will then ask you what they didn't like to ask at first, and talk to you freely about their worries.

I think there are three tasks a parent may well do better than anyone else—or at least *before* anyone else.

1. Meet child and parent on their own level.
2. Advise parents to accept help when it is offered.
3. Urge families to keep a sense of proportion, and to realise that they are all-important to the child's development.

1st Task

By meeting a child on its own level, I mean physically. "Our" children are nearly always lying on the floor, or on a couch, and it is essential to get down on the floor to establish contact with them, and then to persuade the Mother as a first priority to get the child up off the floor so that they can use what sight they have, and feel more part of the family. Quite often another member of the family can be induced to make something to help them sit up, or a "sitting-chair" can be borrowed for the family to see the difference it makes. But almost more important is to appear as an equal—which I am. For this reason, I never take my husband with me—he looks quite impressive and is known to be a Doctor, and therefore slightly remote; I don't take Christopher either, certainly not at a first visit because, although he is more handicapped than most of the children I see, he appears so normal that the early nightmares which I am trying to help with must seem impossibly remote.

Most of all, I make it clear that I am *not* a professional; not only have I come as a friend but I have no training in counselling so I have no fixed pattern to adhere to, no questions I want answered, and I am free to talk to another member of the family, especially another child if I want to. Sometimes it is these children who appeal to me most strongly; so many people have come to see the handicapped one, and it must be very hard not to feel jealous or unimportant. Last month, visiting in Southampton, a four-year-old said to me, "I wish I was a rubella baby, then you'd come and play with *me*."

So that's the first visit, which may seem totally useless, but has at least established a relationship. I always leave my address of course, and telephone number. I write to thank them for letting me come—and I make sure I go again and again and again—because there's always *some* improvement to comment on or some further aspect of help to be tried.

2nd Task

One of the most difficult things for parents to do is to accept offers of help, and they must be persuaded to do this if it is anyhow possible. Parents sometimes say to me, of neighbors and friends, "when they see you've got a handicapped child, they just don't want to know, do they?" and I think they're wrong—people *do* want to help, but because we are suspicious that they are sorry for us, and we dread pity like the plague, we so often refuse, and that help, once rebuffed, is never offered again.

Even an offer to take the dog for a walk, or to give the other children tea sometimes, should be accepted, to give the Mother more time for the handicapped one (or for herself), and to decrease the sense of guilt that so often builds up that she is not doing as much for her child as she might, for she will have been told from the start that she is all-important to the child's whole development—(as if she didn't know). And once involved, these friends become proud of their part in the child's development. A funny, lonely old lady arrived at our house about twenty-three years ago with a clean, scrubbed bacon bone with a blue ribbon tied around it for Christopher to chew "to help his teeth" when he was very small and we were terribly alone. I knew he wouldn't put it anywhere near his mouth, but I was so touched that I kept it, and the old lady stayed to tea and became one of our best babysitters!

Similarly, I find it helpful to involve my friends with this visiting. Sometimes a talkative friend can "chat up" the Mother while I meet Father or Granny or the other children, and often on a second visit (always with the same friend of course), they will notice some improvement I have missed and which, from a disinterested party, pleases the family immeasurably.

Our time of adjustment is usually longer than those parents whose ghastly tragedy, such as a spina-bifida or thalidomide child, is revealed to them at a single blow. *Our* child's multiple handicaps dawn on us one by one, leaving us intensely vulnerable for a long time—until we know the whole lot, and are able to start again, with nowhere to go but forward.

The O.E.D. defines "acceptance" as "to take or receive what is offered," and during these early days when parents are fighting against acceptance, it is helpful to have something to do to alleviate the pain and isolation we all feel, and if parents can be persuaded to devise alternatives to sight and hearing, and are shown that no special skills are necessary to start their baby off exploring shapes and smells, attempting dressing and undressing, feeding and drinking, they feel they are contributing and not being entirely defeated. They will often work out splendid "clues to identification" for themselves, such as always using the same scent or nail-polish, and Mrs. Freeman's ideas for approaching a baby in a cot without frightening him, have been invaluable.

At this stage it is too early for parents to accept written help, or only in very small doses, which is why personal contact achieves so much more. Later on I want to tell you what we do as an Association, but all of that only makes sense when the family has confidence in individuals as sources of help. Here a problem arises as to the person who is of most value to the parents of multiply-handicapped children. If the social services system works, a great many people will see the family, and they may well become bewildered as to whose advice to follow, for unfortunately it is often conflicting. It is very important for one person to emerge as the coordinator or even interpreter, and I was delighted to hear last week, from a Senior Health Visitor, that at a conference of mixed disciplines recently when this question came up, they were urged that it must be the person "most acceptable to the family"—(an entirely new concept this!) and that jealousies and professional pride must be put aside to accept this ruling. I believe that the term "Health Visitor" and indeed the person, is particular to England, and so I must explain that a Health Visitor is a State Registered Nurse and Midwife who has further Public Health qualifications, and is employed either by County Authorities or by the National Health Service to be attached to a doctor's practice as visitor and general adviser on all problems relating to family health, and as such she might well be the ideal coordinator of advice.

3rd Task

Keeping a sense of proportion. This is the most difficult aspect of parental advice to present, but one which I am increasingly sure is the most essential. There are, mercifully, so few of these children whose needs are so great and whose dependence is so complete that it is easy to forget how small a part of the world's problems they are, and to come to see them as all-important. Obviously at the time when we first see parents, they are overwhelmingly absorbed by the sheer day-to-day work of coaxing the child along, but it is still worth trying to find out what their interests were before the catastrophe—and most surprising it sometimes is; I have met, amongst many others, stamp collecting, tropical fish, flower arrangement, golf, church-going and of course bingo and "a drink at the pub." If you can suggest that perhaps they accept one of the offers of help I have already mentioned, and return even once a week to their old habits, though they may not do it, they will at least begin realising that life is going on much the same, despite their disaster, and they can join in again. Just occasionally I have had a letter saying "I'm glad you made me go back to bingo on Thursdays—I'd forgotten how much I enjoyed it," and then I feel I must try again to persuade another Mother to get out and away from the many tensions that we find within our families. For as we must all have seen, the advent of a severely-handicapped child within a family alters all relationships radically, and usually forever.

Sometimes the time-consuming baby drives the Father away from home, or the dreadful but understandable situation of "either he goes or I do" arises, which the poor Mother has to solve by putting the child in care as a rule. There may be active dislike or even persecution of the deprived child by other children or spinster aunts; over-protective Grandparents, undoing discipline parentally imposed, or a closing-in of families round the child to the exclusion of everyone and everything else. So many of these situations would be helped by an occasional foray into the outside world, bringing back a sense of balance and common sense and increasing the store of experience from which parents can enrich their children's life.

And at this stage it is helpful to show parents that they are the most important and formative influence on the child's entire life, for they are adults for so much longer than they are children, and our responsibility for so much longer than they are yours. This may sound unnecessary advice but we tend to think, in our panic state as disabilities emerge one after the other, that we *must* get specialist help for our child—surgery, education, training, and so on; only a small part of the child's whole life will be spent at school, and however concentrated and essential this time is, it will be of very little benefit without the whole-hearted, full-time dedication of families throughout the child's life. We don't always realise this, and when we do it is often very frightening to realise our responsibilities, but it is worth while, in the search for perspectives, just touching on this aspect early in the parents' long journey through life as their child's interpreter. Highly relevant to this aspect of perspectives in family life is my present situation. Today —August 25th, is my only daughter's 21st birthday. I could only come here today if she returned home from Oxford to "housekeep" for her father and brother—an odd sort of 21st birthday treat, but one which she cheerfully accepted, to my great pleasure.

Once families trust you, and have perhaps written to ask you to come again, it is time to suggest joining the Association, though of course not all parents want to do this. We send them initially, a longish duplicated letter of hints and advice, and the Association leaflet with names and addresses of some Committee Members, and our aims set out clearly. Last month at Committee meeting, a new member said firmly that the pamphlet was "too frightening— new parents don't want to know all that at first" and he made us think that we must produce an even further-back leaflet, simply stating that these children, because of their many handicaps, will be slower than normal children in everything they do, i.e. standing, walking, eating, pot-training—and let parents start from there.

Later, when they have seen that their child has progressed a very little, often in ways which we suggested they might, it is time to advise parents whom to write to and whom to approach for help with education and training. We try to run as many training courses in various parts of the country as we can—mostly single day courses as weekend ones pose so many more problems.

We have collected a pool of toys which many of us found useful, and publish a list of these which can be borrowed on long loan by any members, and we hold a certain amount of equipment such as baby-bouncers, indoor swings and walkie pens on the same terms.

We have several films available now, the most valuable probably being Mrs. Freeman's on Social Training which, with her excellent book called "A Parent's Guide to the early care of a deaf-blind child," has started many of us off on the right paths and made sense of so many of our worries.

Above all, we aim to put parents in touch with each other, so that—by exchanging ideas, sharing fears and mistakes, they can find some sort of partial security in the bewilderment that lies about them in the first years. We, who have been part of the Association from the start, have the privilege of knowing the warmth and friendship that participation in this most exclusive "club" engenders, and that in so many countries all over the world there is a handful of parents in exactly the same situation as we are and who have found at least *some* help initially in hearing from us that they weren't alone—as we have all felt in our time.

This business of counselling is a continuing process of course, though during schooldays parents do have a brief period of semi-security with the shared responsibility between home and school. Even so it is always wise to remind them that it is never too soon to begin thinking about school-leaving, jobs and possible employment generally, especially as in England our school-leaving age is 16 which is far too early to expect anything like maturity for our doubly-handicapped youngsters.

To present a paper at our Association conference in April this year, I did a series of twenty-five visits to young adult deaf/blind people and their families, trying to find out about their plans for the future and the amount of help they were receiving from authorities in the way of advice and financial aid. I was horrified to find how little has been done to put them in touch with the many provisions available, and feel that here is an area of adult counselling in which there is a tremendous lot of work to be done. I took with me copies of forms, reports and books all of which were relevant to application for help, but of course all these were only of interest to the truly literate, and brought me back to the inescapable fact that personal involvement is the only possible way once again.

All through this paper I realise that I have used "they" and "we" indiscriminately. This is because I am in the privileged position of being a fairly senior rubella parent myself who is now going through the time of difficulties with jobs to the heartbreak of knowing we can no longer cope with our middle-aged "child" at home and needing help ourselves.

I have mentioned the word "family" twenty times in this twenty-minute paper—once a minute, which I feel is a fair proportion for the importance they hold in this whole complex problem of the lives of the deaf/blind.

Another meaning of the word "acceptance" is "to take upon oneself as a responsibility." Though, as some of you here today know, I don't believe we parents ever fully *accept* what has happened to us, but only adjust our lives round the event, I do feel that this meaning makes sense. After so long with the Association for Rubella Children, I have a tremendous sense of responsibility for all these children, and hope that this morning I have given you some idea of how I try to pass on experience in a responsible fashion, and to begin to make sense of a situation which to all of us "rubella parents" has seemed the end of our world.

Deaf-blind children in the classroom.

THE DEAF-BLIND INFANT: A RATIONALE FOR AND AN APPROACH TO EARLY INTERVENTION

By MRS. SUSAN A. MOUCHKA
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I. The Case for Early Intervention

In recent years, research has established the significance of the preschool years to learning and subsequent intellectual development (1, 2, 3, 4). Accordingly, educators of the deaf and blind have urged early diagnosis, developed home training programs, and, ideally, have provided a formal education program for the child by the age of three.

Even more recently, psychologists have stressed the significance of events in the first year of life for the developing personality. Studies of cognitive development have demonstrated that in the normal infant this first year is one of intense and rapid learning. Gesell and Piaget (5, 6) have given us a clear picture of the dynamics and sequence of infant development.

As a result of this scientific interest in infancy we are becoming increasingly sophisticated in our knowledge of what kinds of infant practices appear to hinder, and which may serve to enhance his emotional, physical, intellectual and social potential.

In measuring the import of this research for education of the deaf-blind, we must begin by looking closely at the deaf-blind infant. With these infants, we are dealing with massive sensory deprivation and its effects on sensori-motor development, adaptive behavior and emotional adjustment. Neither of the two major senses is capable of assuming the developmental (7, 8, 9) burdens of the other. We are dealing with an organism whose drive towards neurological organization has slowed to a near stop because the food which nourishes it cannot reach it. We are dealing with an organism which because of its constitution is predisposed to auto-adaptive solutions which will severely impede any attempts to reach him from the world of things outside himself. We are dealing with an organism which cannot receive impetus to act upon its environment and thus lacks the intentionality to become a causer. To be a causer it is required that the organism move out and to move out is to learn. We are dealing with an organism which may have the capacity to, but lacks the avenues and tools for, the development of human or environmental relationships. So we can see that at every stage in his early development, the deaf-blind infant has special problems. If adaptive solutions are not found for him, the effects on ultimate educability are disastrous. Research implies that the problems we are now groping with in the education of our deaf-blind children have their roots in infancy and until we invest our energy in the study of the unique developmental problems of the deaf-blind infant we will not be able to bring his potential to fruition. Until we devise a strategy for infancy, our intellectual integrity demands that we acknowledge the following: that our evaluation of our present educational techniques is based on experience with children whose problems have been unintentionally, but nevertheless grossly, neglected in the crucial first three years of life; that we are conceivably expending time, energy and money to solve problems which would not exist had we not "grown" them; that statements concerning brain damage and retardation as part of the congenital anomaly of the deaf-blind infant are conjecture and may serve only as a commentary on the way in which we have handled him.

Piaget, Bower, Goldfarb and many others have provided us with the guidelines for action. We must study and find ways (10) of implementing the knowledge that is at our fingertips, otherwise we shall continue to cultivate educational problems and be forced to invent ways of dealing with them.

II. The Intervention Program

Intervention implies the injection or importation of professional help in a situation where normal parental resources are insufficient to meet the needs or solve the special problems of growth and development posed by the disadvantaged infant. An intervention program implies assessment of the problems, the employ of professionals who have expertise in the problem areas, obstacles to development presented by the disadvantaged state.

In planning an early intervention program for the deaf-blind infant we must first destroy the notion that the problem is an additive one, i.e., the sum of the deaf infant plus the blind infant. Such a misconception would lead to the construction of a program which would fall far short of the needs of the deaf-blind infant. The combination of deafness and blindness is a multiplicative association, i.e., creates problems which are unique to the problem itself, and require multiplicative solutions. By and large our early home training programs fail because this phenomenon is not understood. Further, our home training programs fail because our teachers have relatively little knowledge of infant development and how it can be approached therapeutically and eclectically.

Specialists in the fields of psychology, counseling, early infant development, education of the sub-normal, and physical therapy should be recruited as ancillary advisors in the planning of an intervention program for the severely handicapped deaf-blind infant.

It must be acknowledged that this paper is not presenting a total prescriptive plan for intervention with the deaf-blind infant. Rather, the author has chosen to comment on certain aspects of intervention with the hope that further study by professionals will result. Areas for intervention which will receive emphasis in this paper concern the development of human relationships in the deaf-blind infant and adaptive sensori-motor stimulation techniques.

A. Development of the Primal Human Relationship

We see in our deaf-blind children withdrawn, autistic behavior and severe difficulty in forming human relationships. It is highly possible that this problem has its roots in the failure to develop the primal human relationship, the relationship between mother and infant (11). Fraiberg in her work with blind infants has stated that no educational strategy (12) can succeed unless a love bond has been established between infant and mother, unless he has found meaning in a human partner. To our infants, the absence of sight and hearing severely hampers the possibility of developing such a bond. It is through sight that a baby learns who it is who feeds, soothes, bathes, and changes him. It is through the continued association of mothering with the sight of the mother herself that the baby learns to invest value in his human partner and to anticipate the pleasure which will accompany her appearance. It is through sight that he is able to differentiate this person from others. Fraiberg states: "The response smile to the configuration of the human face, the selective smile for the face of the mother, the father and siblings, the discrimination of mother and stranger, the entire sequence of recognitory experience which leads to mental representation and evocative memory are organized through visual experience. To a very large extent eye to eye contact is the matrix of a signal system which evolves between mother and child." It is through sight that the infant experiences the emotions associated with this person's coming nearer and going further away from him. It is through hearing that the mother's voice comes to assume the importance born of association with the lover. In deaf-blind infants both these sensory avenues which serve the establishment of a bond are cut off.

Intervention at the outset must stress the development of the love bonds between the baby and his mother. Parents must be helped to find their way into the baby's existence. Freeman's system of substitute clues (13) should be introduced to the family as early as possible and used consistently in combination with spoken language.

B. Behavioral Characteristics of Deaf-Blind Infants and Their Effects on Mother-Infant Interaction

Certain characteristics of normal mother-infant interaction should be reviewed before a discussion of the atypical. Normal interaction between infant and mother consists basically of a circular system of needs and satisfactions. The very young infant communicates a state of need to his mother through crying and a state of satisfaction by not crying. The infant derives satisfaction from the interaction when he is able to successfully communicate his needs (14). The mother receives gratification from being able to "read" and adequately satisfy her baby. Mothering activities are enhanced when succorance meets with success (15). This "mutuality" (16) invests meaning and eventually love in the relationship. In a practical sense, the need-satisfaction interaction leads to the development of a schedule for the infant which provides a framework of time and predictability within which mother and infant carry on their activities together.

Through observation, discussion and personal experience, the author has categorized the behavioral characteristics of deaf-blind infants as follows: 1. The infant who does not behave, i.e., exists in a state of undifferentiated contentment and frequently, flaccidity; 2. The infant who shows differential response to handling-not handling with a distinct preference for the latter; and 3. The infant who engages in prolonged periods of undifferentiated, distressed crying usually accompanied by hypertonicity and hyperkinesthesis.

Each of these three groups poses special interactional problems which have a direct bearing on the infant's developmental potential. Detailed description of the dynamics of these interaction patterns is not within the scope of this paper nor are detailed proposals for solutions. It is the author's intent to expose the problems and to point out the enormous need for intervention.

The most obvious difficulty with the infant in category one is that there is no interaction. The infant is "contented" in an undifferentiated sense, that is, without any relation to mothering. The great danger here is that the mothers will be tempted to "let sleeping dogs lie." The infant, then, who actually requires more than average stimulation will receive less and be deprived of essential stimulation for physical and emotional growth. This infant does not cue nor does he reinforce handling. Intervention here will involve the structuring of a schedule for the non-signaling infant and the encouragement of a regular program of stimulation.

The infant in category two actively rejects mother and thus successfully wards off human contact. Handling and stimulation necessary for development are very soon discouraged. The mother here sees a direct causal relationship between her mothering behavior and discomfort in her infant. Intervention here must stress persistent, calm and assured handling regardless of the objections of the infant. Such a program will require enormous support for the mother. She needs assurance that with consistent and calm handling, this infant can learn to tolerate and later enjoy physical contact. Without a program of intervention, there is every indication to believe that the deaf-blind infant would successfully prevent the development of any significant human relationships and thwart activities which would promote his growth.

The infant in category three could very easily be the subject of an entire paper. The key here is undifferentiated crying. The mother will interpret it as an indication of a need for which she cannot discover satisfaction. In reality it is not a cue cry and would continue independent of any method of succorance. This infant has a devastating effect on family life unless intervention brings the problem into proportion. The mother is unsuccessful in developing a schedule for the infant. She is constantly involved in abortive attempts to appease him and as a result other aspects of her life erode. There is an insidious process of fatigue and physical deterioration in the mother. Further, when her attempts are so totally frustrated over a period of time, a process of alienation sets in. The infant's difficulties are compounded by the fact that handling is becoming more and more anxious and unpredictable. Intervention here would be massive. Some degree of balance must first be restored to family life by the superimposition of a suitable schedule on the crying of the infant. The mother must have counseling aimed at the raising of her threshold for anxiety as regards the crying. She must also be supported in the continuance of mothering activities until such time as the infant can accept and benefit from them.

C. Curriculum Proposals for the Deaf-Blind Infant

1. The parent as stimulator

Vision and hearing are distance senses and bring constant information concerning the environment to the infant. The information so received is the nourishment for neurological organization and for cross modal coordination of perceptual stimuli (16, 17, 18). Visual and auditory stimuli from the environment, after a period of seemingly passive intake, develop in the infant a drive for influencing the environment. Various investigators have called this drive intentionality and have noted the absence of it in deaf-blind infants and children. Normal infants are surrounded by a smorgasbord of visual and auditory delicacies which are consumed through intact senses. The parent of a deaf-blind infant should be given a basic understanding of this process and be shown how it does not occur naturally in his infant. The food to stimulate his neurological organization has to be prepared and served up to him. With this kind of counseling, the parent can begin to see himself as a "bringer" of stimulation, a replacement as it were, for the senses which in normal infants do this bringing. If healthy interaction patterns and relationships have been established between the deaf-blind infant and his family, the parents will be anxious and willing to proceed to this second phase of the intervention program, a specific curriculum of infant stimulation. The secondary benefit of a planned program of stimulation is its ability to reduce diffuse parental anxiety caused by feelings of helplessness.

2. Specific stimulation techniques

Handling

Handling refers to the tactile stimulation which results from the bodily contact which is given the infant in his daily routine. Stroking, patting, rocking are all instinctual methods of tactile stimulation and must be emphasized as such to parents. However, problems arise when the infant reacts defensively to touch. Some finesse will have to be used in one's approach to such an infant. Varying degrees of physical closeness can be presented. For example, the mother may begin by laying the baby on a pillow (not a hard surface as this gives the baby less of a sense of where all of him is and evokes the startle response for far too long a time). She should lie down 2-3 feet away from the infant and remain motionless and non-touching in his presence for a period of time. When she has done this for several periods of time, the threat that human intervention poses to this infant should become extinguished. The mother could then progress gradually nearer the infant and later introduce stroking, talking and so forth. Eventually she should be able to cradle the infant in her arms. The parent must be urged to continue handling with firm but gentle tactfulness. With familiarity and consistency, anxiety associated by the infant with a particular routine will extinguish. Extinction of physical defensiveness itself is a major advance towards educability. The deaf-blind infant cannot be allowed to successfully thwart tactile stimulation. In the second half of the first year, lap games and gentle roughhousing provide important body contact for the infant. One would not think of explaining this to the average parent, but the parent whose baby is happier lying alone staring at a light or whose baby is constantly fretful will have to be reminded that these are the things that he should be doing; that they are not optional but an important part of an infant's development which he cannot afford to miss.

Communication

The use of Freeman's system of substitute clues was mentioned as one of the first ways of entering into the infant's experience. It is a beginning communication system and should always be used in combination with normal spoken language. If the baby is fitted with a hearing aid, parents must be encouraged in its consistent use and upkeep. If the baby does not yet have an aid, Mother can be reminded to spend periods of time talking softly, close to the infant's ear, or singing and tapping him rhythmically as a means of auditory stimulation. The infant should feel the Mother's mouth, face, throat and breath as she speaks. Parents should be reminded to speak frequently to the child in the face to face position; if they assume at the start that the infant does not see lip movements, he never will. If because he cannot hear, they discontinue talking, he will not develop language. We fulfill our own predictions.

Auditory stimulation makes the infant aware of sound and as early as possible one should assure the association of sound with something pleasurable. Established methods of infant auditory training should be implemented as infancy is the time to begin developing the use of residual hearing.

Parents should be encouraged to talk and babble playfully with their infant to establish the activity of vocalizing and communicating as a pleasant experience.

Stimulation of communication is another area where consistency on the part of the parent will require constant support. There will be a very long period of pouring-in before the deaf-blind infant gives any indication that he is responding. Since the infant's behavior will not reinforce continuing auditory stimulation by parents, the reinforcement must be replaced by the encouragement of the intervener.

Deaf-blind infants may be extremely resistant and disorganized within a stimulus setting arranged by the parent. The parent must, consistently and calmly, continue the planned stimulus exercise, put him back into an attending posture any number of times, repeat the motions, and constantly encourage the child's attention. When the planned exercise is over the parent should be kept from pondering unduly over its lack of success but simply instructed to repeat the exercise at the specified time the following day. Undue anxiety over lack of success in planned stimulation sessions will be so burdensome to the parent that he will lose his ability to be consistent in the presentation of the exercise.

Visual-Perceptual; Visual-Motor

Visual stimulation, or the development and encouragement of visual behavior in the deaf-blind infant, has not been given as much attention as auditory stimulation. The utilization of residual vision, where available, is just as essential as the use of residual hearing and must be stimulated from the earliest possible moment. Basically, a visual stimulation program should provide experiences in which the infant finds pleasure in using his vision, i.e., that the behavior of looking is met with reinforcement and thus is increased in frequency. The intervention program should stress the following practices. Beginning at birth a dim light should be kept on in the nursery at all times. The position of the crib in the room should be varied from day to day. It is advisable to alternate the baby's position in the crib so that light excites both eyes and both sides. At 5 to 6 weeks of age, structure an environment in which it is possible for the infant to notice and possibly follow objects. Hang some interesting visual phenomena (such as a mobile of 3 large, bright, basic shapes or a series of Christmas tree lights) above the crib at the level of the rails and in line with baby's gaze. Change the position of the visual stimuli above and to either side of the crib every other day and experiment with moving it further away. If the mobile moves very slowly it may encourage following or tracking behavior. It may be necessary to remind the parent to move the baby into other rooms of the house during the day so that visual and auditory stimuli and experience differ. This seems elementary, but it is not unusual for the infant to be left in his crib for interminable periods of time.

The infant should be changed and fed from alternating sides. Very simple lap games with rattles and other objects can be demonstrated to the parent. Put a rattle in one hand, play with it, then in the other hand, noting the change in direction of visual attending behavior. Play peek-a-boo, holding baby's hand over his eyes and then releasing. These activities are also helping baby to realize that he has two sides to his body and eventually that he can bring the two sides together. At around 16 weeks the baby can be given several different objects which he can safely put to his mouth; this is a precursor to feeding self and also to eye-hand control.

In the normal infant of this age reaching behavior is usually observed. This is where we are likely to meet with considerable difficulty and activities should be geared to inducing this behavior at the appropriate stage. Reaching requires intention in the infant and is a very significant step in his development. We must go to great pains to induce reaching in the deaf-blind infant. The intervention team should attempt to discover an object or activity from which the infant derives pleasure. It may take some time and an unbridled imagination to do this. A small flashlight or toy which catches light may work; an object which vibrates; an activity which creates vibration such as rapping on the high chair tray; food at a time when he is hungry; a cup of water in which the infant can splash his hand. Make sure he first experiences the toy or activity, then remove it slightly and wait for the reaching response to indicate continuance. Reward the reaching immediately no matter how small. Gradually increase the requirement for the attainment of the desired object.

Any activity which has as its goal the development of intentionality or reaching out into the environment cannot receive too much stress. In the infant who is a little older, one may be able to elicit intentional behavior through physical activities, such as bouncing, swinging or jumping, that is, a reach or pull or some indication for continuance.

Somewhere between 3 and 6 months a mobile can be brought within hitting range of the baby's arms or feet. Things should be organized so that he will hit it involuntarily at first and it will move, swing and bounce. If intentional hitting is noticed, move it away a little so that it requires a small effort to make contact with it. A large bright balloon tied to a string and hung over the infant and within his reach may be used. A light tap will send it floating slowly into the air and perhaps be pleasurable enough to the infant that he may act upon it again. The balloon is excellent for visual following as it is large, bright and slow moving.

Give and take games which will help the infant in learning to visually find, grasp and release objects should be demonstrated and encouraged. The infant must have this kind of practice in order to develop eye-hand coordination. The baby needs to throw things down from the high chair often, parent picks up and hands to baby and baby throws down again. Parents should be encouraged to place objects on the high chair and devote some time to this game each day; it encourages reach, grasp, and release responses as well as concepts of up and down, near and far, you and me!

Motor

Enough stress cannot be placed on the importance of events in motor development. Intervention is essential here and rarely available to the family of the deaf-blind infant. A knowledge of normal motor development and its relation to later intellectual functioning is necessary to the intervention plan. If possible the cooperation of a trained physical therapist should be sought.

When normal postural positions and motor milestones are not reached at the appropriate time, the infant should be passively manipulated with consistency and frequency. The baby who is not pivoting, rolling or turning over must be pivoted, rolled or turned over. The baby who should be crawling but is not must be manipulated in a crawl. Since he does not have a visual impression of normal motor activity, we must supply him with a kinesthetic experience of normalcy, thus we position and manipulate. The child who is not developing all four creeping can be manipulated by the use of a sling or other device or can be involved in games with a crawl box. All four creeping is a very important activity for the coordination and combination of his sides, his two arms, his two legs and his two eyes. These pairs must learn to team with each other, the eyes most importantly. If the floor is warm, baby should be placed there nude, on a sheet, as diapers hinder leg movements. Whenever possible, other children should play in the same room with the baby. He may begin to watch and try to imitate others. Parents can substitute if other children are not available. They should move toward and away from him. Thus begins experience in visual size and distance.

The methods described by Bobath for cerebral palsied children have been successfully used to elicit reflex behavior (19) and subsequent motor development in the deaf-blind infant. The techniques are relatively simple and with a minimum of explanation can be executed by the parent or a helping neighbor.

When our children do begin to walk, kick, jump, etc., one of their major motor problems will be balance. One should begin early to plan activities which stimulate the vestibular system and elicit the righting reactions. A good technique is the gentle swinging of the baby in a blanket. The blanket is held like a hammock by two adults. The infant is swung back and forth on stomach and then on back and gently bounced up and down in the blanket. This activity stimulates the vestibular and increases postural tone and body awareness.

Other motor problems and subsequent learning difficulties can be seen as a result of the deaf-bind baby's failure to develop adequate body image and schema. Adaptive solutions for the infant can begin with a planned system of stroking. A terry-cloth glove, silk scarf, fur mitt, or soft paint brush can be used by the stimulator. Each part of the body should be stroked gently and named. For example, stroke the arm while saying "Cathy's arm." Move to the opposite arm and repeat. Done frequently to all parts of the body, this activity will increase body awareness and correct body image. Another possible goal of the stroking routine is the extinction of tactile defensiveness. Gentle introduction of baby's hands to various prepared textures such as flour, sand, corn meal, etc., is also helpful.

A large mirror hung at floor level should be placed in the home of the deaf-blind baby. He can be placed in front of it during play times each day as an aid to the development of body image and schema. It is advisable to purchase a mirror which is about five feet by five feet so that the child can play actively in front of it up to at least the fifth birthday.

One of the first parts of his body that a normal baby discovers are his feet. Holding his feet is baby's first experience of holding onto something while freeing his vision for attention to other stimuli. We must give the deaf-blind baby help in doing this. Attaching bells, or bright pom-poms to the feet or to other parts of his body will draw baby's attention to them both visually and tactually.

Another motor difficulty which can be inferred from observation of older deaf-blind children is their insufficient inner sense of their physical movement and position in space. Proprioception is the term given to this inner sense and is important to our knowing where we are. Having a strong sense of proprioception helps us to maintain for example our balance in the upright walking position and to make successful, ideationally directed, physical movement. We can intensify and increase the flow of proprioceptive impulses in the infant by attaching small weights (bean or sandbags) to various parts of his body (16). The added weight will cause him to invest more effort in moving these parts, intensify his sense of that movement, and increase his awareness of the weighted parts.

Tactile

Objects of differing textures, surfaces, shapes, hardness, temperature and timbre should be made available to the baby. As he becomes able to move out into the house, an environment of these varied tactual experiences should be structured for him. Place things within and slightly outside the baby's present range of movement. Arrange things on the floor and very low down on the walls. Active tactile exploration of household furnishings and objects should not only be tolerated but encouraged. Objects of great value should be removed, but otherwise the household should not be stripped bare of its characteristics. There should definitely be items such as a small vase of flowers available for the baby to reach for, touch and possibly knock over. This is a valuable experience in cause and effect.

Never, unless there is danger of physical harm, should a deaf-blind infant be thwarted in a tactile exploratory experience. The reaching out with the intention to touch and acquire is a major developmental achievement for the deaf-blind infant and must be cherished and encouraged.

Touching is the infant's one intact sensory avenue and he forms many essential early concepts through this sense. Touching helps the infant to feel what things SEE like—and to SEE what things FEEL like. Getman tells us that when an infant has had rich tactual experience (22) with varied objects he later becomes able to look at something and know what it is with his hands in his pockets. With an early program of visual stimulation, more of our deaf-blind infants with residual vision would be able to do this. Close-up experiencing of an object will allow the child to see, recognize, and ideate it at a distance seemingly impossible considering his absolute visual acuity. Tactual experiences help our sightless children to develop visual skills as well. Helen Keller developed visualization, visual imagination and visual perceptions by using the information given her by someone else through touch.

III. In Conclusion

The author of this paper is the parent of a five-year-old deaf-blind child just recently emerged from the crucial years of infancy. In concluding this paper, it is my consummate hope that the study and development of an educational strategy for infancy will no longer be postponed by educators of the deaf-blind.

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EARLIEST COMMUNICATION WITH A DEAF/BLIND CHILD

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As the parent of a non-communicating Rubella Deaf/Blind daughter now aged 18, and as a teacher of multiply handicapped children (including Rubella deaf/blind), I should like to suggest that parent counselling rarely begins soon enough and that it *should* be begun when the child is born and the handicaps confirmed or suspected. I would further like to suggest that the form this early counselling should take (over and above the normal sympathetic and supportive approach usually made at this time) is linked with pre-communication techniques.

The best way of countering the inevitable shock of having a severely handicapped child is to have something positive to do, something which engenders in the parents the right kind of attitude towards their child and enables them to have a better understanding of the problems which may arise later. Counselling during the earliest months therefore should have for its aim encouraging the parents to think of themselves as "communicators" in a one-way system—bringing the "World" to their child by deliberately making contact with him through a simple method of touch signs or "substitute clues" (which better explains their nature).

It is true that some such system does often develop between mother and the deaf/blind baby without counselling. But such a system is haphazard and not necessarily consistently used. What I would counsel a mother to use would be a planned system, consciously and consistently adhered to—and it would not require any new special learning, nor make too great a demand on the mother's time, because it would be related to the daily routines.

Like any other baby, the deaf/blind one has daily routine handling. For some considerable time several times a day the baby is picked up, fed, changed and put down to sleep—once a day the routine includes the handling necessary for undressing, bathing and dressing again. If mother can be helped to see these as UNITS which become familiar to the baby because they happen regularly and frequently, it should not be difficult for her to pick out the actions within each Unit which are felt by the baby—"felt" is the operative word for it is not what the child touches at this early age that is important, but that what touches him becomes meaningful. If the mother observes what touches baby within the unit of routine, she has an immediate guide to where the substitute clues will operate. The clues, because they are always the same (and the action within the routine not always exactly so) come to be recognized and provide the baby with anticipation of—learning about—what is going to happen next in the same way as a baby does from the ordinary preparatory sounds and sights.

An example of the kind of substitute clue a mother might use is a few seconds or so firm pressure of her hands on his body as a signal that he is about to be picked up or stroking his forehead for a few seconds when he is tucked back again as a signal that he is now being left there. As the child gets older and the routines change, some of these clues will drop out and new ones will develop and ultimately they will lead to the "kind of action signs that the child can also use to make his wants known and communication becomes the two-way system between mother and the preschool child. This system is explained more fully in Part 1 of "A Parent's Guide to the Early Care of a Deaf/Blind Child" recently published in England by the Association I represent.

If we counsel parents in this way, we shall be helping them to lay good foundations for whatever form of communication the child eventually uses. Also not only does the baby come to recognize the clues, but also the "giver" of the clues—and this would seem to be a firmer basis for the relationship he must make with his mother than anything else we might do with him at this time. In the parents we are setting a pattern of stimulating the child (which is so essential to his future development) and bringing life to him rather than cushioning him from it.

I would ask, have we really given enough thought to *when* and *how* we should BEGIN to counsel parents? In the early months of their child's life most parents are filled with desire to be of help—if we give them nothing positive to do we waste a valuable source of energy. If we do not use this period of his life to lay the basis of communication skills, the deaf/blind child loses the opportunities which are open to every seeing/hearing child.

PARENTS OF DEAF-BLIND CHILDREN: SOME IMMEDIATE AND CONTINUING NEEDS

By Miss Elizabeth Banta

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I. Introduction

It is the major concern of this paper to again bring, in a very positive sense, families and some of their immediate as well as continuing needs to the consideration of those who work with them lest families be slighted in our diligence in seeking to help the child, himself. It is to everyone's disadvantage to work with one to the exclusion of the other. It is rare that any program can claim to have truly extended full involvement with families and in their behalf.

Why speak about parents of deaf-blind children? Are they different? Certainly not, in the sense that they are real individuals—with maladaptive as well as adaptive behavior patterns, with aspirations, fears, attitudes, thoughts and convictions, with different ways of communicating needs and ideas, and so forth. The advent of a child, particularly a multi-handicapped child who most certainly deviates from the child they expected to produce and rear, into their lives alters their life pattern. In fact, it plays an important part in the dynamic interchange between all of the family members. All of what they are, the severity of the child's problems, the quality of resources available to them and other reality factors determine how well they are going to be able to adapt to their circumstances not only at the time of the child's birth but as needs change throughout the preschool, school and post school years—during an entire lifetime.

It would seem, however, that there are some factors which would place these parents as a group, in a unique situation. The complexity which accompanies the combination of their children's disabilities comes immediately to mind. Because these are multihandicapped children, medical, diagnostic, child rearing, and educational or training needs become special. Recently, I heard another phrase coined in an attempt to indicate what can easily happen to children with multiple special needs. It was "the Crack and Crevice Syndrome" which I believe was meant to imply that—because it is rare that there is ever real coordination of services in such a child's behalf, because multi-handicapped children's combination of disabilities fail to be within experience of some medical personnel (especially in isolated areas) who are among the first to work with such a child, because criteria for admission to educational programs must be specific to the needs of a particular group, because educational program placement according to what is determined to be the child's greatest handicaps is often inappropriate, because the preparation of professionals assigned to assist him is often specific to one and not his multiple disabilities, and further because some children appear so complex that they overwhelm professional persons responsible for meeting needs, etc., they tend to "fall between" and are lost to a responsible person's attention and therefore subsequent services to themselves and their families. This is, indeed, the most obvious related parent dilemma! It is the one which imposes the greatest amount of frustration and which can be seen in anger and even overt aggression expressed by some parents. Such an expression of feelings is, then, often misunderstood and counterattacked by those closely involved.

One cannot negate the fact that superimposed upon that dilemma, basic personal needs of parents to find satisfaction in their child, to provide the proper environment and to teach him and aid him in his development are altered greatly in gratification. Because of his peculiar combination of disabilities, he presents varied and unique problems for which the parent has no model nor prior experience to draw upon. How do you answer, for instance, to yourself and others who will ask "will he ever speak?", "if so, how will he learn to do so?", or "what will he be able to do in the future?" Lest what is said leads anyone to the assumption that the birth and subsequent problems of a multi-handicapped child will inevitably result in disruption, maladaptive and subsequent pathological reactions on the part of parents, it should be emphasized that many parents succeed in coping with the crisis in a healthy, constructive fashion. However, many parents are unable to face specific realities and to deal with the problems facing them in a constructive way without the help of sensitive, understanding, responsible adults around them. There is much currently written about the importance of appropriate intervention and support as early as possible in crisis situations. It is thought that appropriate intervention during periods of stress can often facilitate not only significant but long-lasting changes in the level of adequacy of persons. Since parents have a lifelong responsibility for their child and since they are the best and most important resource, it would seem that thoughts toward improving the quality and quantity of parent services should receive some priority attention on the part of us all. This might take a variety of forms from giving factual information and recommending resources to lending emotional support to parents in stress. All parents need information, some need supportive counselling and beyond that range, some will need to be referred for personal therapy. Periods of special stress, not all of which have been identified as yet, will require certain services or combinations of services. Needs must be periodically reassessed since this combination of services required will almost certainly be changing.

James Moody, a recent graduate of the Boston College deaf-blind teacher-training program, wrote in a paper presented to his classmates, "if a deaf-blind child has the right to aspire to the highest level of functioning and achievement possible in light of his handicaps and thereby have the most satisfying and productive life possible, his parents and other members of his family have the same right. Problems which arise from the presence of a handicapped child in the family are as much an appropriate concern of an organization or person serving the child as the problems of education and medical treatment for that child." I have included this rather lengthy quote because I have rarely seen so cogent an expression of the rights of parents.

Basic to working with families is a respect for them (for example, their rights, feelings, knowledge and coping ability) as well as a healthy willingness to be involved as a positive force. This may mean extra effort on our part to remain real in our relationships but to strive to be as knowledgeable and competent as possible. Certainly, the point is well taken that professionals and laymen alike are often well-meaning but ill-informed or in other ways deficient in assistance offered to families. The family situations are so varied and often so dynamically complex that no one could pretend to be aware of nor to completely comprehend all of the nuances of individual needs. It is important for more of us to try to the best of our ability to learn as much as possible, as quickly as possible, by reading available literature, by sharing with each other, and through study and research so that quality service can be extended to all such families early and so that there is a continuity in those continuing services which are extended.

To take, for the moment, the role of advocate for the families, the request for further assistance is on the lips of or silently expressed by nearly every parent. We are presented with the challenge to act upon those requests!

II. An Approach: Seek to Build Services on Actual Parent Needs

Perhaps one of the most meaningful ways to learn as well as perhaps the most beneficial way to obtain information upon which to build appropriate services for families is to carefully examine needs *as they express them*—both needs that are specific to a certain period of time in their experience and those which are continuing needs.

If we feel, as I particularly do, that listening to parents is of prime importance for a variety of reasons, many of us need to become better listeners. One must look behind what parents say because they may intend to be honest but defensively cover some conscious and unconscious thoughts and motives. For instance, if one were to examine carefully the reasons behind referrals for educational evaluations, one would readily find this expression of need becoming more and more personalized.

In our correspondence prior to evaluations of children, reasons for referral (which I am sure are representative of what other centers experience) for the most part are either general requests for "further evaluation and recommendations for placement" or for enrollment into our school. To be more specific, represented in the former requests are:

—children who either come from New England or who fall under other Regional Centers for the Deaf-Blind where Coordinators are attempting to define the needs and disabilities in the population for whom they are responsible.

—children already placed in programs but where that agency is desirous of an assessment of the child's potential and recommendations for appropriate training or educational programming.

—children living at home and not attending a program but whose parents are seeking practical suggestions for child care.

—children who have had prior educational evaluations but whose parents and/or involved agencies are seeking confirmation of that diagnosis.

—children whose major disability is mental retardation and this disability is clear to the professionals but they wish to pass on the responsibility of interpretation to the parents to someone else under the guise of not being able to trust their own results because of "lack of knowledge of the effect of sensory deprivation".

—children who are already placed in programs but where there is dissatisfaction on the part of the parents and/or that agency regarding the appropriateness of the placement and where they are seeking suggestions for other reasonable placement possibilities.

If, in this example, you then look even further into the situation, during the evaluation period, the parents and accompanying professional persons break down these more general statements to express additional, more specific, and more personalized reasons for the referrals.

They include:

—stress from within or without the family unit which results in an episode or crisis of varying degrees of severity and which precipitates the expression of that family's need for assistance of different types, including for their multi-handicapped child. For example:

—birth of another child, especially if the family is already large, where outside support is not readily available, where this child also is defective or has expired, or where there have been several children born in rapid sequence.

—strong desire on the part of young parents to consider having more children, and to assume what they feel is a more normal life style—placing their handicapped child away from home *but* appropriately placed, of course.

—marital difficulties ranging from strife to separation and divorce affecting the emotional, social, and financial state of the family.

—loss of a spouse through death—or the prospect or actual accomplishment of legally claiming another one.

—illness, mental or physical, on the part of other members of the family.

—interference and lack of understanding and support on the part of members of the greater family and/or community over an extended period.

—demands and needs of siblings, ranging from learning to live with a handicapped sibling to sibling rivalry of vary-

  ing degrees of intensity to a sad case of attempted suicide.
  - —social isolation, exhaustion or frustration resulting from actual or self-imposed family demands.

- —there are instances where the family is in a state of disequilibrium, such as:
  - —fathers are absent because they work away from home, work conflicting hours, or where they lack the emotional stability or maturity to accept home responsibilities, leaving mothers with a heavy load.
  - —where the mothers become over-extended in meeting needs of normal siblings as well as running taxi service and actually participating in a school program attended by the handicapped child.
  - —where a parent imposes upon herself more than is necessary in the care of the handicapped child under an assumed martyr role or where she over-compensates by becoming overly involved in work on behalf of the "cause" of the child while neglecting his direct care.
  - —where the child is so handicapped and behavior such as sleeping problems and hyperactivity are so difficult that mothering demands are too great in a home environment. This kind of situation also exists when the child's needs remain infant needs for extended periods of time.
  - —where knowledge of child rearing, home management and coping in general are not sufficient to allow the parent to be effective. It is especially difficult in a mobile, small, independent family unit society to know how to rear a normal child let alone a multi-handicapped child. Wisdom of the greater family and lack of precedent make trying insecure.

- —finally, examples of stress other than that of isolation, inexperience and acute family needs include:
  - —financial difficulties, the cause being unemployment or some such reason not directly related to the handicapped child, or because of the need for expenditures for medical care, prosthesis, hiring outside assistance in child management, or supporting custodial, training or educational placement—all of which repeatedly exceeds the limits of the family income.

—cumulative guilt over "why this happened to me" (especially if there is an unusual family history or a particular religious belief) *or* concern over the lack of ability to mother a defective child and to fulfill the foreseen parental role *or* worry over whether or not they are "right" in placing their child in an institution at an early age even if it is not self but professional advice initiated—sometimes reaches a point when parents are compelled to seek out further professional counsel. The effect of a defective child is great on a defective parent ego.

—a cumulation of many family problems which are for some reason overlooked so that the cause for them all is focused upon the handicapped child to the point that there is so little tolerance for him that placement outside the home is viewed as essential.

Precipitating events often occur in combination and the list could go on, but it need not be a crisis which causes parents to request evaluation for their child. Many of the children we have seen have been at beginning school age. Parents have fulfilled their role during the expected preschool period and are seeking programs in much the same way they would seek out a good school for their kindergarten age child except that they need professional help in assessing potential and understanding the type of program to seek. Placement is sometimes viewed as inevitable and sometimes there is a real urgency to turn over some of the responsibility for the child's learning to someone else.

Often, we find that parents have coped through their own good sense with minimal professional help and are not necessarily terribly uncomfortable in their situation but are at the point of needing a professional opinion of the child's placement needs in order to push authorities to provide for their child a future program which is currently non-existent. Agencies for multi-handicapped or retarded children, among others, are often open to trying to help create services for preschool children. Many children referred have benefitted from such services but the agencies are currently advising parents that theirs is not really the appropriate facility or if the maximum age limit is about to be reached are gently pressuring parents to seek placement elsewhere. Often their workers accompany the parents for the evaluation, and interest in these children can be high. However, it cannot be assumed that they have, in fact, been helpful to the child more especially in attempting to solve some of the difficulties in the parent-child relationship.

Certainly, this account of some of the reasons behind referrals is incomplete and is also superficial if a counsellor were to be seeking what he might consider the deeper significant factors for the purpose of greater understanding of parent needs and for planning therapy for them. However, my point in all of this is to say that we can all learn to listen better and by the very act of our concern be helpful. We may also have gained insight into actual total family needs which might then be useful in planning appropriate services or in acting directly or indirectly, in whatever capacity our role allows us, in that family's behalf.

III. Impression of Some Parent Needs During Selected Periods of Time

Since I have already moved into the area of some needs verbally expressed during the period that parents spend with us while their child is being educationally evaluated, perhaps it would be of interest to some of you for me to share concerns expressed beyond those specifically listed under reasons behind the referrals. For my part, I would hope to strengthen the case for more, better, and longer lasting services to families of deaf-blind children. (We need to defend their right to elect those services, however.)

Let me first explain that during the period that the parents spend while their child is being evaluated, time is allowed for observations and scheduled appointments as well as for informal conversations with members of the staff.

Not unlike other evaluation centers, among our several intentions, we wish to obtain from the parents all that they can recall regarding the various aspects of their child's growth and development and to clarify history—family, medical, social and education—so that pertinent information can become a part of our impression of that multi-handicapped child in his family as we work toward our final assessment and subsequent recommendations. As the week progresses, parents directly tell us about many concerns which lend themselves to parent education and counselling. I am terribly impressed with the opportunity professionals have to communicate with parents at this time and in such a way that the educational evaluation of their child can also be an invaluable learning experience for the parents, personally.

Concerns most frequently encountered, without delving, have been focused on the question, "how can I be more competent in my role as parent of a multi-handicapped child?" (Rarely are they actively seeking to relinquish the role.)

Parents are especially interested in assistance concerning:

1. teaching self-help skills, especially feeding, walking and toileting, although sleep, washing and dressing are often trouble areas. To look behind the surface of this question a few common findings must be remembered. Developmental milestones in this referral population have frequently been delayed; normal child-rearing practices and expectations have often not proven to be successful; yet parents feel that these skills are for parents, not teachers, to teach; they most often focus their guilt, then, not on the cause of the handicapping, but on themselves. Because of their feelings of inadequacy in child-rearing, their query often means "am I the primary cause of his lower level of performance in these areas?"
2. acquiring knowledge to help him to use the hearing and vision he has. This not only includes training implications but concern about where and when to receive adequate medical care, how to use aids and to interpret the child's response or lack of it.
3. finding better ways to communicate with him. Very often parents have been trying very long and hard without much if any response from their child and without sufficient understanding of either his problem or what to do about it.
4. finding materials or ways to help the child become more interested in his environment through play.
5. finding ways to set limits and maintain a consistent routine. (This is especially important to the parent of the child who has peculiar neurological problems which cause him to behave in such a way that he does not respond to normal disciplining techniques.)
6. discovering how to explain the handicapped child's disability to the siblings, grandparents and other involved persons at the same time they are coping with their own feelings regarding being a parent of a multi-handicapped child. There may be anger because of the imposition and with no one to blame, disappointment which reoccurs as milestones are de-

layed, the overwhelming realization of the years of commitment to a child so dependent (beyond what a parent expects), anxiety over not only the child and his future but their feelings of ambivalence and again their insecurity about their own ability to rear the child.

7. finding ways to divide time and energy so that total family needs are considered and coped with and so that the family life style remains as unaltered as it can be, is often a dilemma.
8. understanding the disability. Loss of vision is often the easiest to understand. Hearing loss, neurological dysfunction and mental retardation require a great deal of dialogue. To sort out the effects of each disability on the child, let alone the combined effect, is overwhelming. Besides, they are often already confused because of prior conflicting opinions they have received. Lack of confidence in professionals and the vast gap in their own knowledge leaves them in a dilemma which produces anger and makes decision-making difficult. We find a few parents who would like to retreat from reality by believing that they can find someone who could advise them of "where to go to have the defects completely corrected."
9. finding financial assistance, appropriate medical care, and appropriate educational programs. (There is a need to explain the difference in program goals which are set up to meet the needs of children within different levels of educability.)
10. "making programs happen" if they do not currently exist.
11. feeling comfortable with their choice of placement for their child. This is a question that parents of children needing residential placement nearly always request time to consider.
12. seeking appropriate professional guidance and counselling in family or personal problems, for example, genetic, psychiatric, medical.
13. starting or becoming a member of a Parent Group (Association) or at least initiating correspondence with another parent to alleviate some of the feeling of isolation and gain some satisfaction from actively working for their own cause.

It should be noted here that parents whose children are either adventitiously deaf-blind or so severely multiply handicapped that they can derive little benefit from even the best programs of stimulation are dealt with only peripherally in this paper. Some of their needs are complex and quite different. Exploring them in a separate paper would allow them to gain more value in the eyes of the reader through a different emphasis.

As has beeen obvious to you, I have been dwelling on needs representing for the most part parents of preschool congenitally deaf-blind children since they are most frequently the current referrals for educational evaluation. (The majority of the children seen recently have been in the chronological age range of three to seven.)

Some of those needs that were just itemized were gleaned from the initial period of disclosure after which parents want and need an honest statement of the diagnosis, an explanation of its implications, an opportunity to ask questions and to begin to make concrete plans for the future.

Since parents have found the process, itself, of educationally evaluating their child of value to them, perhaps it is important to record some of the things learned from their statements about the way they like to be encountered and about the opportunities for learning and growth this period can provide. Some of the many points they have mentioned are:

—an opportunity to be away from all other direct responsibilities and to concentrate on their handicapped child. For many, it is their first chance to spend that kind of time and they discover many things about him for themselves as they, in turn, think about management, sensory loss, his primary problem, the ability to communicate, his present growth and development and thoughts about his future.

—an opportunity to become acquainted with other parents of multi-handicapped children, to live in the same cottage and to share not only the week's evaluation experience but many feelings, ideas and experiences as well.

—to receive a full orientation of what to expect, through informal "talk" sessions.

—perhaps for the first time, to observe other deaf-blind children and to receive explanations regarding their disabilities, their program needs and their potential. By observing other children in the diagnostic classroom, in the local nursery school for deaf-blind children and in the Deaf-Blind Department itself, they are better able to see their own child, in perspective, and to understand program needs.

—the advantage of spending at least an entire week so that the children have a chance to adjust and so that it is felt that the evaluation personnel have in fact observed his "normal behavior" if not some of his better performances. (They are careful to watch staff at work and appreciate expertise, conscientious observation, the care with which children are handled and the "realness" of staff.) If they feel that a staff has cared and has "really looked" they are more ready to listen and to trust what is said in conclusion.

—the freedom to be involved in the total process and to observe simultaneously with personnel; to receive explanations of what is being done as it happens (in essence, learning via live demonstrations); to have personnel open to their comments and welcoming their questions—displaying at the same time frankness and honesty and a genuinely caring attitude—keeping in mind the importance of dialogue in language everyone can understand.

—to receive a full report, according to the evaluating staff's understanding of their children, with no information withheld and to have an opportunity to ask questions until information is clarified. (This is according to the belief that parents have the right to know and can understand!) They also appreciate an expression of general expectations for growth and future needs because this kind of gross prediction is necessary in order to plan. To know that future contact can be direct and is easily available, that interest will be continued, and that reports will be available is also important to them.

—to have the advantage of a local professional worker experience the evaluation period with them, to become even more involved (in most cases) and to assist them when they return home.

—to be presented with a summary and recommendations at the end of the week but to be left with possibilities to consider—under the assumption that they have the right, the capability and the responsibility to make their own decisions.

—to feel as a parent that one has been thorough in his search, that he understands the problem and can have confidence in the recommendations made.

—the advantage of having a Center coordinate available information regarding their situation via reviewing medical history, having a current medical consultant's recommendations, obtaining information from prior educational programs and from the parents themselves and from their own observations regarding the child's total performance in order to finally describe to his parents their impression of the child—his disability, his potential, and his placement, medical and management needs. For many parents, their only prior experiences have been bewildering, inefficient, inadequate and most certainly fractured medical care with no attempt on anyone's part to think about the child's total needs. (This is especially true of parents from the lower social-economic groups who cannot afford to be private patients but have received care primarily via clinics.)

—an opportunity for emotional catharsis but with the focus on their child. It is important that they be heard until they can no longer think of additional pertinent information and that their thoughts be requested, respected and used. (It might be important to note here that Dr. Paulina Fernandez in reporting at the San Francisco Conference, stated that "In all situations, the scoring of data obtained on interviews has been statistically compared with data obtained on observations and has been found to be in significant agreement.")

—an opportunity to receive counselling which does not work toward an end of full acceptance of their disabled child. Perhaps there is no such thing as full acceptance. Why should there be? To convince ourselves of it as counsellors only encourages, in the parent, suppression of real but incompatible feelings which must exist. He, instead, should be helped to realize his feelings may be normal and are best handled when expressed.

It is important at this time for professionals to recognize that it is indeed difficult to be responsible for the complex multi-handicapped child in such a concentrated way as these parents must be, to help parents to recognize that some of the child's problems have a physical base so that they can find some relief from lack of success in particular areas of child-rearing, and yet to provide practical information which is appropriate to what they have found his level of functioning to be and which would be helpful to his parents and teachers alike. Parents reflect the need for help in learning to live with their handicapped child in the present as well as to know where to turn for professional help as needs change.

I have spent perhaps too great an amount of time on the period in which a young child is educationally evaluated. This is often the error in reality also. Some children are "evaluated to death", medically, initially, and then educationally. Diagnosis is often viewed as the end of the professional contact when, indeed, it is but a beginning of extended professional responsibility. For many children this may be the initial period of contact—by the educator. That is not to say that this is as it should be. Early intervention is very important but it also has its own complicated history. Beyond the initial diagnostic period then, many parents, according to their own statement, need continued help in working through their feelings, in management of everyday problems and difficulties to a reasonably satisfactory degree, and in making long-range plans for the child's future. Ongoing professional contact should last indefinitely and may not be with the same person(s) who presented the educational diagnosis. Needs will be continually changing as the child grows and time passes. Again, provisions need to be made for this!

Since at least two of our panel members will address themselves to the stage in which the child is still an infant, and since they are parents of deaf-blind children, it is far better that they deal with the subject from their direct experience. Hence, my comments will be rather brief and from a slightly different point of view.

Parents of infants need time to adjust to the reality of having a handicapped child. They may or may not have other children but in any case most parents do not feel fully prepared to be parents, let alone to cope with all of the other problems a multi-handicapped child presents. There is no precedent to rely upon. Often they are caught up in the need to seek medical care. It frequently seems that there is no end to the number of defects being found, to the need to go through tense hospital scenes, to wading through medical jargon, and so on. As the child grows, he is often noticeably different. That cannot be remedied. Part of the excitement of having an infant is watching him develop and reach the all-important milestones of walking and talking. But—if he does not do what he should according to normal standards, it can be very disappointing. Other people notice and so parents must cope with questions or well-meaning sympathy at the time they are trying to adjust to the idea, themselves. Both parents, but initially probably more fathers express the realization of the years of dependency the child will need, the limitations on the family and the many questions regarding what his future will be. Egos can be further crushed by the notion picked up from professionals who seem to have an air of special "know-how" which may make the parent realize his inadequacy even more in this particular situation. At the same time, the returns in terms of response from the infant may be practically non-existent for all of the effort on the part of his parents. The list of possible effects on families could grow but let it suffice to say that the parent has much to cope with in those early years which might demand more than he is capable of handling, because, in fact, it may be part of an overwhelming situation. Factors in that situation and the kind of support available might determine even at this early stage that a placement away from home may be necessary although most families attempt to cope with the child at home in their early years. We all recognize that the early years of a child's life are the most important and it is also accepted that for the most part he fares best in his own home environment. All or part of the factors described above may be occurring in the life of the deaf-blind child's parents during those important years when how they handle their child, what they feel for the child, and how they care for the child can make an, as yet, immeasurable but vital difference to that child's future. Certainly, these are years when a base is built by that family upon which the professionals in an educational or training setting continue to work.

Crisis models describe reactions during the important early periods and are helpful in planning since they set forth one kind of therapeutic intervention. However, they are often used as if they were prescriptive without providing either the model or description of long-term counselling and family aid or the flexibility which would allow for meeting family inter-reactions which might vary from the model.

Agencies have attempted to deal with this early period by urging early referrals so that individual counselling can be done, by incorporating some exposure to parent needs in medical, educational and para-professional education programs, by setting up Home Training programs for parents, by bringing parents together in a group, and by referring parents with deep or complicated problems for psychiatric or other types of special help. Many parents have found services at this stage inadequate, inappropriate or absent in spite of the amount of conscious effort currently being supported.

We need to thoroughly investigate reasons why and to move rapidly to change this situation.

By the time the deaf-blind child is three years old, the trend is to attempt to enter him into a preschool program. This is often possible since many new programs have sprung up during the past few years to meet the increased demand for services presented by the Rubella epidemic and improved medical techniques to "save more babies" than ever before. They seem to vary in purpose from day care, to training a specific skill, to normal nursery school arrangement, to specially tailored individualized programs. Since research does not support the idea that preschool programs contribute significantly to changes in the normal child in spite of what we might all "feel" is true, and in light of the fact that it is known, as we have already said, that the parents have the greatest influence on the growth and development of the young child, it would seem that no preschool program should exist without effort to involve parents as fully as possible. During those years, they could be assisted via regularly scheduled parent group sessions and individual counselling sessions and even with their own involvement in the teaching situation—all of this structured to lend a great deal of support. The objectives would be to increase their adjustment to and understanding of their handicapped child, to become even more appropriate in child care and to become more realistic in plans for future educational placement. Hence, the preschool is an ideal setting for assistance to parents through the stage following the diagnosis itself. The fact that he is in a program so that responsibility for change in him is shared, that others are familiar with and concerned for the child so that thoughts and feelings can be easily discussed, and that the isolation is reduced by contact with other families of similarly damaged children—often contribute to coping with reality, the reduction of anxiety and the increase in the feeling of well-being in the entire family.

Many of the needs felt and expressed by parents are ones that run throughout their lifetime. There are a few that are conspicuous among the families of the school-aged child. Whether the child is placed in a residential situation or a day program, the agencies share common problems and difficulties and coping can be equally as tremendous. For instance, the parents have many concerns prior to entrance into any program. Their involvement has been great so far. Now, they will no longer provide the lion's share of his experiences, be the authority on how to cope with his behavior or to help him learn, be the most important person in his life, etc. They must adapt to this—as well as to their own lives in the child's absence. The transition needs to be facilitated. It is also a fact that all programs suffer the same major problem and that is how to cope with increased psychological distance between parent and child, not to mention parent and staff, during the entire period the child's education or training is in process.

If, in fact, the child returns home for evenings, weekends, vacations, or forever (once his education or training years are over), continued meaningful involvement is a must through every possible means! It is easy for some households to learn to function best without the handicapped child or to fall into a false sense of security that the child is "all taken care of" once he enters a program without facing the reality of termination dates and ultimate responsibility. All must remember that the children are, first, the children of their parents and the problem of respecting their rights, feelings and knowledge as well as helping them to cope appropriately with their total family responsibility at this time is certainly difficult to meet satisfactorily but is essential.

The agency has the responsibility to facilitate consistent involvement via the individual efforts of the teachers and child care staff as well as through support of other members of the staff so that parents can meet other parents, confer with members of the professional staff and visit often and at length in a variety of settings. Services can be offered to teachers and child care staff in their efforts with parents via appropriately prepared consultants who can aid them in interpreting such things as their role, attitude and practices, parent behavior, and worker-parent communication breakdowns as well as how to cope more effectively in the actual situation. The teacher-parent relationship is perhaps the most vital one existing during those training years. It is to be supported and encouraged in every way.

One mother wrote that to be kept involved was not only her right but "beyond that, it was her basic need". Information should continue to be given in an open, frank way. Reports on learning and classroom behavior are important. However, it is also essential not to overlook the sharing through dialogue of what parents are missing of the child's daily living experience (especially if the child has a major communication problem).

To have given an early projection related to the general prognosis of a child is important to the parent. To begin to think and plan at an early stage, after he has grown and developed and more specifics are known about him, for his future possibilities after school is essential.

Here, I will abbreviate thoughts regarding the families of the school-age child and mention that soon a chapter in our teaching curriculum will be completed which will be devoted to this very subject. It is hoped that it will serve as a common base of information upon which to build in actual practice as well as being one attempt among many in developing ways to become more effective in meeting family needs.

There is little written by parents of deaf-blind children expressing their own needs related to the period of time when their children are either approaching the end of their school-age years or are already of such an age. Mrs. Margaret Brock, as many of you know, is a parent of an older deaf-blind child and a member of the National Association for the Deaf-Blind Rubella Children in England. She visited about twenty-five homes and recorded her own thoughts as well as those of families interviewed in a paper she presented at a conference in England this Spring. Her paper is well worth the consideration of us all.

We would need to concur with her that in most countries it is increasingly more acceptable to make an investment only in children whose possibilities for growth can be visualized. She vividly points out, however, that there is the long-term dependence to consider; that many parents have for long periods of time tried to cope with providing security and experience and with improving the child's personal independence but they are not super-human—they become weary; that there is often a resurge of guilt in that the limitations of the child before them are now ones which he will always have and with which they must cope in some way—either at home or in selecting an institutional placement; that again in this age group there are individuals who become lost to any services especially if they cannot be served under vocational rehabilitation; that the fact that the handicapped person is of adult age much longer than he is a child cannot be overlooked and that again in spite of tremendous expenditures for children, funds and programs are minimal for these same individuals after the age of approximately eighteen. She advocates the assumption by an agency of the responsibility for bringing to the parent's attention some of the following:

—the availability of trusteeship schemes where personal welfare services are offered when parents can no longer do so.

—the need to appoint someone, preferably not the siblings, legally responsible for the deaf-blind child in their will.

—the caution not to imperil the single lives or marriages of siblings through responsibility for the handicapped child.

—the need to be informed of social security, welfare services, disability regulations, insurance schemes, etc. that might be of assistance.

—the need to find neighbors or relatives to share the load and to ward off family isolation.

—the need to try to provide for constructive leisure time activities for the handicapped person. There is worry over the loneliness which comes, especially with communication problems.

—the need to seek out and support the idea of "hostel life" which would allow for relief for parents as well as gradual transition from home to a, then, partially familiar living situation.

—the need to find varied and more appropriate work possibilities.

Neither time nor the purpose of this paper permits exploration of some other vital issues.

May I quote from Mrs. Brock's concluding paragraph: "Soon there will be many more families facing the problem of living the 'different' life that the possession of a handicapped adult imposes, and we must try to blunder on toward a better pattern to offer them so that together we can offer a more positive contribution and 'not only just about keep up'."

The recent trend in this country as well as others to begin to plan on the national level to meet needs of all deaf-blind persons (and presumably, eventually, their families) from birth throughout life is an exciting one which will hopefully spread to better serve all handicapped individuals and minimize the blundering, in Mrs. Brock's reference, with the ultimate goal being continuous and effective care. It is certainly a challenge to us all!

IV. Implications for the Future

In conclusion, let me pose some questions to be considered by all of us who are interested and involved in the field of the deaf-blind in an attempt to leave us in a questioning attitude concerning what might be done to improve the quality of services to families, including deaf-blind children.

We might ask:

1. *Have we recently made a comprehensive assessment of the services offered to families by the agencies we represent?*
   This would include such things as determining the exact limitations of services rendered; our underlying attitudes toward families; our priorities; our "hang-ups"; where direct services might be extended with careful planning for implementation of both short and long goals; future plans of re-assessment; provisions made for parents needing immediate attention; what is being done in in-service training to increase the effectiveness of staff; the qualifications required of staff employed to give direct service; our contribution in preparing future professionals in this specific area of concern; the type of working relationship there is with other service agencies which might have as their goal psychotherapy, home management guidance, part-time assistance in a child's home care and training, temporary or long-term foster placement for the child, financial aid for medical care, genetic counselling, etc.
2. *How do we intend to meet not just group, but individual needs?*
   Are members of the professional staff prepared, in the broadest sense, to work with parent groups as well as with individual parents? Is the parent educator prepared with information specific to needs of families of deaf-blind children? Are families from isolated areas made to feel that a Center is always available to them or that traveling personnel will, on occasion, come to them to assess and demonstrate or counsel or in any case lend support? Is there professional staff who can be frank, honest and caring while being professionally competent even if the approach varies?
3. *Do we need to urge and participate in further research to assist us in this area?*
   We might look at the manner in which a parent adapts to the role of rearing a deaf-blind child along the design of Barsch's study reported in *The Parent of the Handicapped Child;* when parents are most apt to face periods of stress and which types of intervention are most effective; what the

attitudes of parents of multi-handicapped children are and how they can be influenced; what information, experience and support teachers or future teachers need in order to cope competently with the family, but within their role, whether or not there are better approaches to parents which need not be based on concepts derived from the studies of mental illness since most parents are basically mentally healthy but may need intervention in their behalf because of the crisis the deaf-blind child brings to already complex lives; how effective, for instance, Parent Group Education as promoted by the Child Study Association might be in work with groups of parents of deaf-blind children; how psychological distance can be minimized between parents and a child placed in a residential setting; how deaf-blind children can be better integrated into a community; whether or not there is a need for an academic specialty in educating personnel to work with parents of multi-handicapped children; what can be learned about the type of person to be selected who will best meet needs for most parents; when parents are ready to accept, in order to use, specific information regarding rearing his child, an investigation more in the area of learning theory in adults but vital for understanding the effects of counselling proper.

With these three major questions being only a beginning in the number of questions we can think to ask ourselves, there would seem to be a need for active research, the findings of which should certainly lead to greater understanding of and improvement in this aspect of our national and international effort.

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A pre-school deaf-blind boy with his teacher.

PREVENTION AND TREATMENT OF THE RUBELLA SYNDROME

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The brilliant epidemiological deductions of the Australian ophthalmologist Gregg altered the concept of rubella as a benign illness and documented a significant incidence of serious congenital defects in babies whose mothers acquired the disease during pregnancy. Although published in 1941,[1] Gregg's work was not widely recognized until publicized in a presentation by Boston's Conrad Wesselhoeft in a 1947 *New England Journal of Medicine* article.[2] The full significance of these clinical observations was not realized until simultaneous isolation of the rubella virus in 1961 by Parkman and his associates[3] in Washington and Weller and Neva[4] in Boston. The epidemic of 1964 provided an opportunity to utilize these new laboratory techniques in studying the pathogenesis of the disease and delineated more specifically the considerable damage caused to the fetus by infection with rubella virus. I would like to note some medical aspects of the disease, discuss the controversy over the current immunization program, and then say a few words about the rubella syndrome and its treatment.

We used to consider German measles a benign three-day illness with a little fever, a generalized rash, and lymph node enlargement notably behind the ears. About 40% of adult women develop arthritis, which is uncomfortable but lasts only a week or two. Serious disorders of thrombocytopenia and encephalitis following German measles are relatively uncommon. Definite clinical diagnosis of the disease in a non-epidemic year is impossible because of the many other virus diseases which cause similar rashes. It is endemic but major outbreaks occur in six- or seven-year cycles with the last epidemic in 1964, in which 20,000 rubella syndrome infants are estimated to have been born. We can expect another epidemic within the next year or two, and this underscores the urgency in applying any preventive techniques we have available.

Like most other viral diseases, the peak spread of virus occurs in childhood during the early school years. Studies of immunity point out that by age 19, the majority of youngsters have developed natural immunity to this disease. Work by Horstmann and others has shown that by the time of childbearing, an average of 85%[7, 8, 9, 10] of women have already had this disease and therefore their fetuses are presumably not at risk of the rubella syndrome. It is interesting that Horstmann's studies also show that in the lower socio-economic groups, incidence of naturally acquired immunity is even higher. Overall, then, roughly 15% of childbearing women are at risk, and in Britain and other countries, the thrust of immunization has been directed at this age group. In the United States, however, after careful consideration by knowledgeable men of great integrity, the program was planned to eradicate the virus, and the targets for immunization were school-age and younger children who would be most likely to develop the disease and bring it home to their pregnant mothers. This magnificent experiment represents the first time that we have directed immunizations at an age group not itself at risk from complications of the disease. It is clear that immunization of boys has little to offer them directly. It is also clear that immunization of young girls may present problems if immunity from the vaccine is not firm and longlasting as it is from natural infection.

There is already significant evidence documented by Horstmann,[10] Chang,[11] and others that vaccine immunity is indeed not as protective as natural immunity. Horstmann, in particular, has shown that the re-infection rate of vaccine-immunized individuals when exposed to live natural virus is close to 100%, as measured by a rise in antibody titer, whereas the re-infection rate in individuals who acquired immunity by having the natural infection is only about 3%. Vaccine-induced protection, as assessed both in terms of the height of antibodies and the serological re-infection rate in exposure to wild virus, is significantly less satisfactory than that afforded by natural disease. It would be tragic, indeed, to immunize millions of our young girls only to have them grow up to childbearing age with greater risk of fetal anomalies than if we had let the usual 85% of them acquire solidly protective immunity naturally. There remain some doubts as to whether virus may be carried to the fetus in maternal blood during inapparent serological re-infections. Preliminary studies to date have failed to demonstrate such transmission, and it is the hope of experts here in this country that vaccine immunity will be adequate, or that the next ten years will see the development of improved techniques to produce such firm immunity. A major problem in our rush to get children immunized is an economic one. While Congress and state legislatures may appropriate vast sums of money for the implementation of immunization programs, they are often unwilling at the same time to provide enough funds for proper surveillance of the incidence of the disease and vaccine reactions and efficacy. As an example, a year ago when Congress had voted $48,000,000 for rubella vaccine, investigators studying the use of this vaccine were experiencing difficulty in obtaining funds from the National Institutes of Health. Despite the need for austerity in government spending, it is vital that funds appropriated for application of new medical advances be accompanied by sufficient support for continuing study and re-appraisal.

The need for constant re-appraisal has already been shown in several immunization programs. Smallpox immunization, for example, has been effective in ridding the United States of this disease so that we have not had a case for over 25 years. Immunization programs in Africa and the Near East the past few years have dramatically reduced the incidence of smallpox so that the time is now at hand to consider altering smallpox immunization procedures. Studies by John Neff in 1963[5] suggest that even the small incidence of serious side effects of the vaccine now makes it desirable to limit its use in the United States. There are an average of seven deaths from post-vaccination encephalitis yearly as well as hundreds of non-lethal but still discomforting complications from use of smallpox vaccine. A recent re-appraisal of tetanus immunization[6] suggests that we have been over-zealous in giving emergency boosters and have caused an increasing number of discomforting side reactions as well as needless expenditure of many millions of dollars annually. Both polio immunization and measles immunization, two of the most effective vaccine programs of recent years, have problems connected with them. These statements should not be regarded as reasons for abandoning such programs. Rather, they should emphasize the need for public support of continuing study and constant re-appraisal. This need for continuing study applies even more to the rubella program.

Thus, those of you who are involved with rubella syndrome children should be aware that some controversy does exist with regard to the nationwide program which is continuing. The dilemma facing us, of course, is that in order to immunize women of childbearing age with a live-virus German measles vaccine we would want to be sure that they are not pregnant at the time of administration of this virus or do not become pregnant for the following three months, because vaccine virus produces a viremia which could spread to a fetus. The potential for congenital anomalies from fetal infection with vaccine virus is not yet satisfactorily determined. Furthermore, it is estimated that the cost of serological studies to find the 15% of childbearing women who are not immune would possibly be more than the cost of immunizing all children, and the development of facilities for testing all women and actually reaching them before pregnancy presents substantial difficulty. Since success of the rubella immunization program in the United States depends on widespread acceptance in order to eliminate the virus, it must be recognized that only about 35 million youngsters have now received such immunization and it seems unlikely that more than 75% of those susceptible will ever receive the vaccine. Another unresolved question, therefore, is whether immunization of only this number of children will be sufficient to create a barrier to protect the women of childbearing age and break the back of any widespread epidemic. We hope that it will, but the issue remains in doubt on many counts! Adequate studies must be supported to follow this program for the next fifteen years as a minimum, and I am particularly anxious that we pursue the option of screening girls during adolescence and women of childbearing age so that priority may be given to individualized immunization of this non-immune group which is immediately at risk.

Let us turn now to a simple presentation of the pathogenesis of congenital rubella. Maternal viremia is necessary in order to transmit the virus through the blood stream to the placenta. Even in this situation, there may be no transmission of virus to the fetus and a normal infant born. When fetal viremia occurs, widespread organ infection may follow with cell death by lysis, chromosomal breakage, and inhibition of mytosis and cell growth. This can result in death of the fetus at this point, or it may lead to a continuing rubella virus infection with failure of cell differentiation, slow growth and failure of cell division in differentiated cells. Damage to major organs may also result in indirect damage to others.

The risk of congenital anomalies is very high in the first few weeks of pregnancy, being about 47% during the first month and gradually diminishing so that during the 13th to 16th week of pregnancy, the risk of anomalies is only 6%. The overall risk in the first trimester has been variously estimated, but most reliable figures place it at about 19%. It is interesting that this virus, which has seemed to produce such a mild disease in the past and seems to infect cells in tissue culture with little grossly demonstrable damage, results in persistent infection with such devastating damage to the fetus. Fetal infection with rubella continues after birth so that virus is excreted for many months and has been found to persist in cataracts for a matter of years.

Most of you are familiar with the anomalies which are involved in the congenital syndrome. Babies may be born with active generalized disease and viral sepsis. During the neonatal period, there may be encephalitis, bleeding disorders caused by thrombocytopenia, bone disease, hepatitis, and other continuing acute and chronic problems. Congenital heart disease occurs in about 52% of the rubella syndrome babies and hearing loss in about the same number. Cataracts and glaucoma occur in about 40%; corneal opacities and rubella retinopathy also are frequent. Typically, the babies are low in birth weight and remain underweight and slow in linear growth all their lives. This is presumably due to slow growth and failure of cell division instituted in the uterus. Dental anomalies are very frequent.

As a result of this widespread fetal infection which continues to do damage during the rapid development of early infancy, the rubella syndrome child presents as a mutliply handicapped youngster requiring medical evaluation by many specialists as well as the specialized educational evaluation which you have been discussing at this conference. The specific treatment of the various problems must constitute a group effort in order to achieve maximum success. In most instances, it is treatment of a chronic disorder to improve the condition rather than to cure it. Much can be done with life-threatening congenital heart disease and more will be done in the years ahead. Hearing loss is a major medical problem requiring careful evaluation and the use of auditory support devices wherever indicated. Many of the eye problems are amenable to partial surgical correction, particularly the cataracts which may be removed with striking success in many instances. It seems likely that there will be further developments in this area in the not too distant future that will offer some helpful additions in correction of sight. The dental anomalies again are fixed and result frequently in widespread dental caries and orthodontic problems. These children should receive fluoride supplements routinely from birth onward, either in drinking water or as supplements to the diet. Orthopedic devices and surgery may be very useful adjuncts to medical therapy. Evaluation of the diffuse central nervous system involvement may be extremely difficult in the presence of impaired hearing and/or vision.

More studies need to be done with a wide variety of drugs including anticonvulsants, tranquilizers, the amphetamine group, and vitamins in large doses in an effort to bring partial control of seizure disorders or hyperkinetic activity so that these children may receive greater educational input. Having worked with the group at Perkins evaluating a number of these children over the past two years, I feel very strongly that the team approach to evaluation and treatment offers the best hope for progress. A significant number of the children we evaluated had had badly fractionated medical care with various medical specialists each looking at his own part of the disease process and yet with no one addressing himself to the total child in the context of h[illegible] and educational environment. I have felt for a long time [illegible]tors and physicians needed to get together more in the ca[illegible] children. Certainly nowhere is this mutual input more important!

One of the findings to come out of our work at Perkins was the observation, not yet followed up completely, of Miss Nan Robbins that in the Iceland epidemic involving about 35 youngsters, none of them seem to have had serious cataracts. In considering this further, it became apparent that the disease in Iceland may have been more severe than is customary, perhaps due to the isolated island position of this population. Unusually high temperatures of 102° to 104° were frequently recorded in the mothers experiencing this illness. It is interesting to speculate that the Iceland epidemic may have hit a population with less natural defense resulting in more severe maternal disease but sparing the fetuses the eye involvement so frequently seen when maternal disease takes its customary mild form.

Unfortunately, there is no specific treatment for this virus infection once it begins. Gamma globulin is effective in many disorders, and there is reasonably good evidence that it has a useful place in treating pregnant women who may be exposed to rubella. Evidence summarized by Schiff[12] demonstrates clear-cut prevention of clinical disease and also significant reduction in incidence of serological conversion by use of large doses of gamma globulin. Furthermore, use of gamma globulin does not interfere with serological studies to determine whether the mother acquires the disease in subclinical form, so that abortion is an option still available for the woman in the first trimester who does develop serological evidence of German measles. Liberalization of the abortion laws in the United States has now made abortion an option to individuals with this disease. Advice regarding this procedure should include consideration of the risk of fetal anomalies at a given time in pregnancy as well as the priority of the pregnancy itself.

The use of antiviral drugs might seem logical both in prevention after exposure and treatment of the fetus or infant. Unfortunately, Amantadine, although having antirubella activity in the test tube, has not been proven effective in treating or preventing the disease in monkeys. Use of interferon and/or interferon-stimulating agents may offer something in prevention of virus diseases in general, but it is not practical for German measles. There is today a tremendous amount of work being done on antiviral activity with various agents. Hope for the near future in preventing this syndrome by use of these agents cannot be considered realistic.

In summary, then, though there is hope that the present immunization program may prevent significant numbers of rubella syndrome babies in the next epidemic, there remain doubts as to its long-range efficacy. Continuing studies must be pursued and immunization efforts focused more on the young women at greatest risk. Gamma globulin should enjoy wider usage, and abortion is a last resort now thankfully more available to all women. Treatment of this chronic disease in children and their educational evalulation are best accomplished by a team that can follow specific recommendations through with comprehensive and continuing care.

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Deaf-blind children learning rhythm on special floor that transmits vibrations.

POSSIBLE CONTRIBUTIONS FROM PEDIATRIC NEUROLOGY AND NEUROPATHOLOGY TO THE UNDERSTANDING AND MANAGEMENT OF CONGENITAL RUBELLA CHILDREN

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The subject of the neurological problems associated with rubella illustrates, I believe, some of the basic problems of pediatric neurology. Let me at the start state what must be obvious: that the study of the neurology and neuropathology of congenital rubella is not going to cure rubella, or solve the clinical problem. The study of the neurological problems of rubella does, I believe, help us think about two of the broad problems of pediatric neurology: 1) First, the nature and consequences of insults to the embryonic brain. This is the neuropathological question. 2) Second is the problem of the disturbances in development of behavior and performance that result from damage to the developing brain. While these may be seen and dealt with, often, as psychological or educational problems, they are at bottom neurological, and we should eventually hope to understand them in those terms.

It will be obvious to you that these problems are difficult in rubella and pediatric neurology in general, because the *developmental dimension* is added to the usual facts of neuropathology and neurology. Thus the effects of injuries may be seen only long after they occur, and the patterns of behavior and neurological development may be altered in obscure ways that defy analysis if approached in a static fashion.

With the above as introduction, I should like to discuss some of the features of the neurology and neuropathology of rubella in general terms, hoping to emphasize principles that may have broader applicability in pediatric neurology.

First, concerning the neuropathology. It is well-known that the developing embryo is susceptible to damage by the rubella virus only at a discrete time in development. This is generally taken as the first three months of gestation, though infection at later stages of pregnancy clearly can produce the congenital rubella syndrome. We have learned that the range of the congenital rubella syndrome must be expanded, in that active infection acquired through the placenta often persists into post-natal life, sometimes through the first year or more of life.

The specific susceptibility of organs and cells to the injurious effects of the virus is well illustrated by the lens. The lens cells become susceptible to the virus only after they begin to differentiate from primitive lens epithelium at about the fifth week; why that should be so, we don't know. Later, a tough capsule forms around the young lens, and this seems to protect it from invasion if the virus infection occurs after the capsule is formed. Virus inside the lens cells, however, seems to be protected by the capsule, and virus has been isolated from lens later than from any other organ—up to about three years of age.

The damage to cells and organs from virus depends also on the morphogenetic, developmental calendar of the organ at the time of infection. In the heart, for instance, infection at the stage of closure of the atrial or ventricular septa may cause specific failure of those critical events, whereas infection at later stages, or continuing into postnatal life, will produce a diffuse—and less interesting—necrosis of myocardial cells.

In connection with this idea of critical stages when damage may occur, I would emphasize that the brain has by far the longest cycle of development of any organ, and correspondingly is apt to be at risk for the longest period. Active brain morphogenesis extends throughout the nine months of gestation, and then through the first year of life in the important events of myelination and cellular organization of the cerebellum. By contrast, the lens is essentially formed by the twelfth week of gestation.

The brain is in fact quite uniformly involved in congenital rubella. This is perhaps best demonstrated by the high incidence of microcephaly in rubella. In fact, in some series microcephaly has been the most common single finding, a figure of 62% being given by Swan. Curiously, he gives an incidence of mental retardation of only 5% of 101 cases. We shall discuss this apparent discrepancy later.

It is accepted that head size reflects brain size quite well, in general. We must conclude, then, that rubella brains are small. Naeye has recently presented data indicating that these brains are small because they have a smaller number of cells. This is a very important and interesting finding. It must be considered together with the evidence from pathological examination of fetal material infected by rubella. These studies indicate that rubella causes damage and necrosis of brain cells—and indeed of cells in many organs—with virtually no inflammatory or separative reaction. That is, the infected cells simply drop out—and the remaining cells carry on unchanged. This biological reaction, or lack of it is consistent with what is found if such a brain is examined later: a smaller organ composed of fewer cells but with every part present.

This suggests an important biological idea that the number of cells produced in the formation of an embryo is limited, and if they are destroyed the deficit can't be made up. Thus, in part at least, the genetic instructions seem to be "make so many cells", not "make an organ so big." What I have said is an oversimplification, of course; for one thing, the virus seems to *retard cell proliferation*, in addition to destroying without trace cells that exist already; both lead to the same result.

There seems to be evidence that rubella virus often—or usually—continues to infect the brain throughout fetal life, and well into post-natal life. Virus is often cultured from brain and spinal fluid for months post-natally, and congenital rubella encephalitis and meningitis are prominent parts of the "expanded rubella syndrome". The pathology of the later stage of the disease is somewhat different from that described above for the early fetus. In brain, the major damage is to cells of small blood vessels and capillaries, which then leads to small areas of infarction in the brain substance. Some inflammatory response may be present at this stage.

Later, for reasons not known, the active infection subsides—and the infant's function and neurological development may then begin to improve substantially. Thus we must think about rubella affection of the brain as something not simply occurring in the first months of gestation, but as actively continuing in post-natal life; thus the neurological disorder and the microcephaly may be actually progressive through the first months or year of life.

One other aspect of the neuropathology of rubella is illustrated by the investigations of Dr. Thomas Kemper. He has examined neuropathologically the brains of rubella children at various ages. In them, he found no evidence of inflammation, of necrosis, or of gliosis; that is, they showed no evidence of active destructive disease. What they do show, quite dramatically, is a marked retardation in maturation, which is general throughout the brain. For instance, the brain of a rubella child 5½ months old resembled, in terms of myelin development, that of a normal newborn; normally, by five months there should be a dramatic increase in myelination over that present at birth. The myelination lag was present in all parts of the brain and indicated a general retardation in the pace of brain development.

The concept of retarded development of brain following prenatal rubella infection helps in thinking about the clinical neurology of congenital rubella. Often, I must admit, the deficit is not so minimal. However, I would recall the data of Swan's mentioned previously that while 62% were microcephalic, only 5% were mentally retarded.

It seems evident, however, that many of those who are not retarded nevertheless have developmental lags, often of significant degree in one or several areas. I would submit that, in general terms, it requires a normal mass of brain to develop normally; and that in the child stricken with congenital rubella, the retardation of brain growth, both in number of cells and rate of myelination, is reflected in inefficient development of neurological function.

Let me say quickly, that in many cases this seems to be in fact a lag and not a permanent deficit. As evidence for this, I may cite the 25-year follow-up study of Gregg's original patients in Australia; of that group of 50 patients, the great majority had made a remarkably good socio-economic adjustment. Only five were considered mentally retarded, the other 45 equalled the normal population curves for intelligence, despite the fact that most were handicapped by severe deafness. Psychiatric illness was no greater among them than in the general population.

It is reported that the parents of at least three of these patients who are now normal were told that their children would be significantly mentally retarded. I would guess it happened more than three times, and I believe it continues to happen.

I would like to mention one other problem that always interests neurologists, but for which I have no real answers, and that concerns the "localization" of functions which are retarded in the neurological development of rubella children, as well as other minimal brain dysfunction children. When we see children with congenital aphasia, does that mean that their left parietal and temporal lobe is damaged? Or clumsy children—does that mean their cerebellum, or their frontal lobe, is specifically damaged? Or organically hyperactive children—is their limbic system specifically affected? The answers to these questions are very much harder to arrive at in children than in adults. (The most obvious reason is that the child's neurological function is quite plastic—the best-known example being the ability of the right hemisphere to mediate speech after damage to the left in childhood.)

In some youngsters, the deficit we observe seems to result from the combination of a peripheral sensory defect and impaired maturation of brain. An example is the aphasia often associated with deafness in rubella children, but going beyond what can ordinarily be accounted for by the hearing loss alone.

I saw an analogous striking example of this phenomenon in two congenitally blind girls who had a marked and persistent defect in spatial orientation—in one so severe that she could not find her brush on her dresser in her room in the morning. The neurologist would ordinarily like to attribute this to a non-dominant temporal lobe lesion; but again I wonder if this is not a combination of a severe congenital sensory deficit with a maturational retardation of cerebral cortex, the combined deficit becoming manifest in the point of least resistance—or the point of greatest stress, as it may be.

I would like to give one contrary example to make a fairly speculative point. We have been interested in youngsters with aphasia without hearing loss, and often with more or less of the features associated with what is called autism. In examining EEG's and pneumoencephalograms on about 15 of such children, we have been struck that a large number of them have demonstrable abnormalities of the left temporal lobe. It has been tempting to associate their language deficit with left temporal lobe pathology or deficiency, but we cannot do this as yet. This does suggest however—and I mention it only for this purpose—that local lesions may yet be found to account for specific neurologic defects in the brain of the developing child.

I fully realize, to my dismay, that I have given you few facts. I believe, however, we are discussing an area where there are few facts to give. A better correlation between development in intellectual, motor, emotional, and behavioral realms, and the state of brain development and integrity, is a task that lies ahead, for the most part, and is, I think, as interesting and vital a question as any man can put.

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A classroom for deaf-blind children.

TRAINING OF PERSONNEL FOR THE EDUCATION OF DEAF/BLIND CHILDREN

By KEITH WATKINS

North Rocks School for Blind Children (N.S.W. Department of Education), Sydney, Australia

Paper for presentation through coloured slides

In designing and implementing a teacher training programme and at the same time making provision for the training of ancillary staff, the administrator must take account of the type of child to be educated and be fully aware of the basic needs of the child. Again, it is essential that he understand the desirable principles of approach to be adopted in respect of curriculum and methods.

Then, of course, there are the wider aspects such as: the administrative philosophy and framework through which and by which the programme will be developed; the availability of resources, including those in related fields of study; and the social, political and economic climate of the times.

So, there will be no universal approach or panacea. Indeed, flexibility and versatility would seem to be key attributes, particularly in respect of personnel training for the education of deaf/blind children, a field in which there are so many unknowns and uncertainties. However, from a descriptive analysis of a particular programme, certain basic considerations become evident.

Type of Child

At the North Rocks School for Blind Children, in accordance with the now internationally accepted definition, a deaf/blind child is regarded as one who has both a visual and auditory impairment to such an extent, when considered *conjointly,* that he is unable to develop or function satisfactorily in either a regular programme for auditorily impaired children or a regular programme for visually impaired children. So, in our Deaf/Blind Department we have pupils with visual and auditory impairments in a great variety of degrees and combinations.

At the same time, our children display an extremely wide range of capacities and personality differences. In fact, as Carl Davis, Head of Perkins Psychology Department has indicated, the deaf/

blind child "is a personality structure that is unique and exceedingly complex." Hence, we do not have a quantitative lower limit of educability. Still, we have qualitative evaluation for placement based on the needs of the child and availability of suitable educational programme.

So, on the one hand, the types of children in our Department range from the congenital, totally blind/profoundly deaf, functioning at a very low educational level, to the adventitious, totally blind/profoundly deaf, functioning at a very high educational level. On the other hand, they range from the congenital, partially seeing/profoundly deaf, to the congenital, partially seeing/hard-of-hearing, functioning either at a very low or very high educational level. Then, of course, there will be departures from the range already mentioned to include some children who might well be described as pseudo-deaf/blind. For example, in this category we have the visually handicapped child with a severe language-learning problem due to other than severe mental retardation (aphasic, autistic).

Thus, while each child is a complex individual, there are certain basic criteria for labelling him deaf/blind and placing him in the programme. He will have both a visual and auditory impairment or both a visual and pseudo-auditory impairment other than severe mental retardation. Moreover, he will be educationally retarded due mainly to his dual handicap.

Curriculum and Methods

The general philosophy and curriculum theory of the North Rocks School for Blind Children are based on the principle that atypical pupils are first and foremost children. Again, provision of the desirable education for atypical children necessitates construction of a programme which fully recognises their likeness to the normal child while at the same time giving full recognition to their special needs. Such a philosophy is applicable to our deaf/blind children.

In our Deaf/Blind Department drastic modifications are made to the regular school curriculum while methods are applied in accordance with the needs of the pupils. The curriculum is not confined within subject compartments but is child-centred. A five-weekly programme based on individual needs is designed by the class teacher. The main areas of special education from which techniques and technology are drawn are: the auditorily impaired, the visually impaired, and the educationally retarded. Other areas include: the mentally handicapped, emotionally disturbed, autistic, aphasic, and physically handicapped.

Hence the training programme for personnel has been based and developed accordingly.

The Class Teacher

All teachers have a responsibility to practise self-improvement in relation to techniques used and technology applied, thereby facilitating professional growth. Continuative in-serve education for the class teacher must be a feature of a deaf/blind programme as in any educational programme. However, the great variety of methods and specialized skills applicable with deaf/blind children requires that the class teacher display a high degree of understanding and flexibility in order to provide the desired programme. In-service training alone is insufficient to ensure a supply of teachers with the necessary skills, attitudes and versatility.

Therefore, all classroom teachers in our Deaf/Blind Department have had regular training in a Teachers' College, several years of practical experience in general and/or special education, then an additional year of training in the education of deaf/blind children at Perkins School for the Blind or at North Rocks.

Our teaching programme was launched in August, 1966, with three teachers trained at Perkins. Three more teachers were sent for training in the face of a growing number of children awaiting placement. However, it soon became clear that, if the Deaf/Blind Department were to develop as a comprehensive programme, a continuing supply of specially trained teachers would be essential. Equally evident was the fact that we could not expect to continue indefinitely to rely on the good graces of Perkins to train our teachers, particularly in such numbers. Then, of course, there was the financial aspect of sending trained teachers around-the-world for an additional year of special training.

Having a nucleus of six Perkins-trained teachers, and having first-hand knowledge of the experience and design of the Perkins training programme as a guide, a course of training was planned along similar lines. The N.S.W. Department of Education accepted the plan which was put into operation from the beginning of 1969 as the first course for the deaf/blind or blind in this part of the world.

The course is conducted jointly through the Course for Teachers of the Deaf at Sydney Teachers' College and the North Rocks School for Blind Children. Teachers from regular schools are seconded to the course for one year before taking up an appointment in our Deaf/Blind Department. In 1969 eight teachers completed the year, while in 1970 seven were trained, including one from South Australia and one from Queensland—these having returned to their home States to educate deaf/blind children. While some practise teaching has been undertaken by students from a teachers' college, the full course has not been conducted during the current year as sufficient teachers have been trained to meet staff requirements, while several have been appointed to schools for deaf children until required in the Deaf/Blind Department. However, with basic procedure and resources well-established under a flexible system the course can be re-activated as the need arises. Basic personnel to conduct the course are readily available, being drawn from teachers of the blind and deaf/blind within the school and resource people from without At the same time, the Course for Teachers of the Deaf at Sydney Teachers' College continues each year.

The following is a broad outline of course structure:

1. *Sydney Teachers' College*
   A. Subjects Related to Deafness
   B. Education of the Auditorily Impaired
   C. Psychological Aspects of Deafness
2. *North Rocks School for Blind Children*
   A. Subjects Related to Blindness
   B. Education of the Visually Impaired
   C. Education of the Deaf/Blind
   D. Demonstration Lessons: Blind, Deaf, Deaf/Blind
   E. Practical Method: Tadoma, Finger Spelling, Braille
   F. Practise Teaching: Blind, Deaf, Deaf/Blind (9-10 weeks)
   G. Observation and Teachers' Aide: Deaf/Blind Department (3-4 weeks)
   H. Films
3. *Field Trips*
   Observation schools, classes, establishments, clinics, including those for: blind, deaf, partially seeing, autistic, educationally retarded.

From this outline it will be evident that considerable emphasis is placed on practical training in the school situation. Moreover, the theoretical aspects covered at the school are presented through a seminar approach rather than through lectures. Again, the seminars are pitched at the level of the practising teacher rather than at advanced academic levels. Indeed, the consensus of student opinion suggests that for future courses every effort should be made to devote even a greater proportion of the overall time to theory and practise within the school situation.

While there is no rigid check list of characteristics for trainees, there is a selection procedure based on degree of interest and objective desire to enter the field, coupled with previous teacher training, experience, and success in regular teaching. At the same time an opportunity is given to observe the teaching programme before a decision is made. Thus, the course is an additional year of professional training and the Deaf/Blind Diploma (North Rocks or Perkins) is now recognized by the N.S.W. Department of Education as an additional year of training in respect of status and salary increment.

The specially trained teaching staff is regarded as the fulcrum on which the Deaf/Blind Department balances, being the basic component for both the teaching programme and the re-cycling of the training programme. Its functions include: class teaching; assessment of prospective pupils; seminar leading; home teaching; demonstration teaching; supervision of practise teaching and other trainee practical work; special speech training.

In 1964, when commenting on the Perkins Teacher Training Programme for Deaf/Blind, Dr. Waterhouse said: "The effect of this training programme on the size of our Department has been conspicuous." We could say the same thing for our programme and go even further. In fact, the very future of our Deaf/Blind Department, in terms of extent and nature, will be dependent on the training of teachers. Before the training course was established in 1969, we had six teachers and ten children. In 1970 there were twenty-two children and thirteen teachers. This year we have twenty-two pupils, twelve teachers, and three teachers' aides.

Ancillary Personnel

With the trained teacher as the pivot, a variety of in-service methods is used for the training of ancillary personnel. Included here are: staff meetings, staff seminars; case studies; supervision and advice from trained teachers; observation of lessons and activities; professional reading; instruction in technology; instruction in techniques; films. These methods are applicable to the following: specialist subject teachers (e.g. Physical Education, Home Science, Industrial Arts); integration teacher (e.g. class for blind, class for deaf); general teaching staff (e.g. blind department); teachers' aides; counsellors (e.g. psychologist); medical personnel (e.g. pediatrician); residential staff; parents; and so on.

In Conclusion

The importance of having specially trained teachers to educate our deaf/blind children cannot be overemphasized. Not only are they faced with the immense responsibility of providing an education for a most complex group of personalities, but they are also charged with the tasks of providing in-service training for a great range of ancillary personnel and assisting with the basic training for future teachers of deaf/blind children. At the same time, as with all personnel engaged in the educational process, they have the added responsibility of continuing their own education through in-service methods such as: seminars, summer schools, professional reading, conferences, research, observation, and visits to other programmes (including related special fields and regular schools).

APPENDIX

TRAINING OF PERSONNEL FOR THE EDUCATION OF DEAF-BLIND CHILDREN

By KEITH WATKINS

Contents of Course for Teachers of Deaf-Blind Children at Sydney Teachers' College and the North Rocks School for Blind Children (N.S.W. Department of Education) Sydney, Australia

COURSE FOR TEACHERS OF DEAF-BLIND CHILDREN AT NORTH ROCKS SCHOOL FOR BLIND CHILDREN

Subjects Related to Blindness and Education of the Visually Impaired:	Education of Deaf/Blind:	Field Trips: (Examples)
Philosophy of Educ. of Blind Psychology Curriculum: General methodology teaching of Braille partially seeing method teaching of mathematics teaching of language arts teaching of social studies special devices e.g. writing physical education industrial arts home science Particular Areas: blind with additional handicaps (retarded) psychometric testing orientation and mobility integration, residential, day special school structure and diseases of the eye (educ. implications) administrative structure socialization of blind vocational assessment and placement partially seeing	Basic Principles Assessment and Evaluation Curriculum: Speech method: Pre-speech, Yale chart, Alcorn symbols, Tadoma, McGinnis, natural commands, language method: McGinnis, Fitzgerald key elementary subject method: arithmetic (number) social studies Particular Areas: socialization deaf/blind visual perception programmes Comparative Programmes: U.S.A., England, Holland. Films: Four Corners Deaf/Blind N.R. (Aust. A.B.C.) Motor Development in Ed. D/B (Holland) Children of the Silent Night (U.S.A.) Legacy of Anne Sullivan (U.S.A.) Demonstrations: Related to theoretical areas Blind, Deaf, Deaf/Blind	Partially Seeing Units: (Northmead High School Lidcombe Primary School) St. Lucy's School for Visually Handicapped St. Edmund's School for Visually Handicapped Macquarie University—Speech & Lang. Dept. Sandy Robertson Kindergtn for Vis. Handcpd. Victor Maxwell Nursery for Vis. Handicapped Schools for Deaf: North Rocks Farrar Waratah Castle Hill Units for Hard-of-Hearing Commonwealth Acoustic Laboratory Autistic Assoc. School. Practical Method: Braille Tadoma Finger Spelling Practise Teaching: Blind Deaf Deaf/Blind Hard-of-Hearing

COURSE FOR TEACHERS OF THE DEAF AT SYDNEY TEACHERS' COLLEGE

Subjects Related to Deafness and Education of the Deaf

A:

1. Anatomy, Pathology and Physiology of the Ear, Nose and Throat.
2. Nature of Deafness: Causes of Deafness: Medical and Surgical Treatment of Deafness.
3. Acoustics: Nature and Measurement of Physical Sound.
4. Psycho-Physics of Sound: Sound Sensation: The Measurement of Sound Sensation.
5. Measurement of Hearing and Deafness.
6. Ascertainment of Deafness.
7. Incidence of Deafness.
8. Sound and Electricity: Hearing Aids and Other Amplifying Systems.
9. Phonetics.
10. Speech: Its mechanism and characteristics.
11. Language Development in Hearing Children.

B:

1. *Aims of Treatment:*
    (a) Children
    (b) Adults

2. *Speech Reading:*
    (a) For deafened adults
    (b) For deaf children

3. *Auditory Training:*
    (a) For deafened adults
    (b) For deaf children

4. *Developing Language in Deaf Children:*
    (a) Pre-school children
    (b) School children
    (See also under Curriculum and Teaching methods.)

5. *Curriculum Problems and Teaching Methods:*
    (a) Basic Subjects—Reading, Writing, Number
    (b) Other Subjects—Social Studies, etc.
    (c) Different kinds of lessons (viz. Picture talks, Stories, News lessons etc. re written and spoken language development.)

6. *Speech Improvement: Methods and Problems:*
    How to improve the quality of speech of the deaf at various stages.

7. *Nature of Educational Provision:*
    (a) Kinds of Provision—all age levels (0-20)
    (b) Ideal and Actual
    (c) Methods of classification.
    Manual
    (d) Basic Methods Oral
    Combined
    (e) Kinds of provision outside of N.S.W.

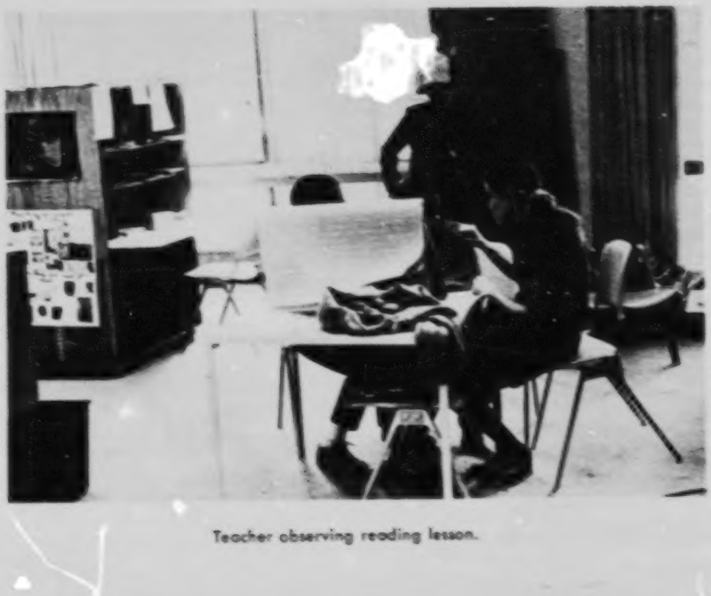
8. *History of Education of the Deaf:*

9. *Problems of After Care:*
    Vocational Guidance: Job Selection:
    Vocational Training: Job Adjustment:
    Social Life and General Welfare.

C:

Psychological Aspects of Deafness

1. Essential differences between Deaf and Hearing child at various age levels. (Effect of various degrees of deafness.)
2. Behaviour Problem of Deaf Children.
3. Problems of parents of deaf children.
4. Problems of deaf adults.
5. Effect of deafness on psychological processes, e.g. Memory, Thinking.
6. Deafness and Personality.



Teacher observing reading lesson.

MULTIPLE HANDICAPPED (DEAF-BLIND) TEACHER TRAINING PROGRAM SAN FRANCISCO STATE COLLEGE

By **Barbara Franklin**, Ph.D.

Coordinator, Perkins School for the Blind

The immediate objective of this program is to prepare teachers for Multi-handicapped (Deaf-Blind) children to meet the increased demand resulting from the 1964-1965 Rubella epidemic.

The multidisciplinary philosophy of the Multi-handicapped (Deaf-Blind) teacher training program at San Francisco State College is reflected in the course content, practicum experience and use of outside consultants and guest lecturers.

The trainee's required courses include four specifically in the Deaf-Blind area, taught by Dr. Franklin and Dr. Jackson, with emphasis on task analysis and the preschool child. The students are required to take a course in Teaching the Blind and Partially Sighted, taught by Mr. Hatlen in the Vision area. They are also required to take the course in Language Development in the Young Deaf Child, taught by Dr. Muir, Deaf Area Coordinator. Most of the students include in their electives a course in Teaching Neurologically Impaired Children, taught by Dr. Bigge, Orthopedically Handicapped Area Coordinator, and a course in Audiology, taught by Dr. Lamb of the Communicative Disorders Area.

The students begin their practicum experience by the second week of the term, and the more experienced trainees are allowed an active participating role from the outset. The emphasis on the young child is carried through in their observations and student teaching, since they obtain their practicum experience in classes for preschool deaf-blind children at the Home Demonstration Program in Hayward, the Diagnostic School for the Neurologically Handicapped and Sunshine School in San Francisco and the Multi-handicapped Center in San Jose. The trainees get practicum experience on both the preschool and elementary level at the California School for the Blind, Deaf-Blind Department. The latter provides the students with the necessary experience in teaching academic skills to deaf-blind children. The diversity of the practicum facilities is representative of the various settings of Multi-handicapped programs throughout the country.

In addition to the course content dealing with developing communication skills and making maximum use of residual hearing, Dr. Franklin also demonstrates specific techniques with deaf-blind preschoolers at the Home Demonstration Program sponsored by San Francisco State College, as well as with older children at the California School for the Blind, Deaf-Blind Department. Since many of the deaf-blind children have basic learning problems, the trainee's practicum includes observation of Mr. Donald Kruse teaching aphasic children at the Multi-handicapped Center. Each trainee observes a complete diagnostic evaluation of two multi-handicapped children at the Diagnostic School for Neurologically Handicapped, including medical, psychological, speech, language, hearing and vision testing. Observation of the educational program at the Diagnostic School familiarizes the student with the various members of a rehabilitation team. For example, techniques described by Dr. Bigge in her course dealing with the neurologically handicapped are reinforced by watching the physical therapist at the Diagnostic School. The school also provides an additional facility for the students to observe specific therapy for children with aphasia and other learning problems related to central nervous system dysfunction.

Guest lecturers from related fields who are used to supplement the Multi-handicapped (Deaf-Blind) teacher training program include Dr. Carolyn Compton, Learning Specialist, who lectures on motor development and cerebral palsy implications; Dr. Douglas Crowther, Pediatric Neurologist, who describes the Rubella syndrome and its neurological implications; Dr. Richard Dixon, Pediatric Audiologist; Dr. Earl Stern, Ophthalmologist; Dr. Louis Mehr, Optometrist, who discusses low vision aids; and Dr. Hilde Schlesinger, Psychiatrist working on the Mental Health Project for the Deaf.

Practicum facilities have been selected so as to provide a broad base of experience with multi-handicapped children, particularly deaf-blind. All of the locations are within one hour's drive from San Francisco State College.

The trainees do most of their observing and participating on the preschool level since well-trained teachers are especially needed to develop programs to meet the needs of the Multi-handicapped children born during the 1964 Rubella epidemic. Practicum facilities include the preschool deaf-blind program sponsored by San

Francisco State College and the Multi-handicapped classes in the San Francisco public schools.

Another practicum facility is the Diagnostic School for the Neurologically Handicapped which adjoins the San Francisco State College campus. The students both observe and student teach in their newly established experimental preschool deaf-blind class. In addition, the students observe diagnostic evaluations of multi-handicapped children at the Diagnostic School, including psychological testing, audiometric evaluation, speech and language assessment, pediatric and neurological workups. This type of experience will help the trainees to better understand diagnostic evaluations.

Another facility is the Multi-handicapped Center in San Jose. The program has 27 multi-handicapped children, including 12 deaf-blind. The students observe both the deaf-blind and aphasic classes. Since many of the deaf-blind children have accompanying degrees of learning and perceptual problems, exposure to aphasia therapy should prove useful.

The California School for the Blind, Deaf-Blind Department now has 11 classes. The trainees continue to participate and student teach at this facility, primarily on the elementary level. This provides them with the necessary experience of developing speech and language skills in deaf-blind children, in conjunction with the teaching of academic skills.

In addition to the practicum experience already described, the students also have laboratory assignments, including basic spectrographic analysis of their own speech. An understanding of the acoustic nature of the spoken word is essential in trying to determine what children with different types of hearing losses probably hear. This information can then be used as the basis for planning the auditory training program. The students also have practice using the audiometer so that they will have some familiarity with the procedure.

MULTIPLE HANDICAPPED (DEAF-BLIND) TEACHER TRAINING PROGRAM
SAN FRANCISCO STATE COLLEGE

Barbara Franklin, Ph.D., Coordinator

Required Courses

Sp. Ed. 263.1	Education of the Deaf-Blind	Structure and function of the ear and eye; the Rubella Syndrome including pathology, etiology, degree. Problems of hearing and visual defects and their educational implications. Physiological and psychological problems of multiple handicapped children.
Sp. Ed. 263.2	Teaching the Deaf-Blind, I	Methods of teaching multiple handicapped children functioning at the preschool level. Child development evaluation and diagnostic teaching techniques. Development of language and communication, intellectual and motor development of the preschool child. Parent counseling as an integral part of the preschool program.
Sp. Ed. 263.3	Teaching the Deaf-Blind, II	Teaching multiple handicapped children in the elementary school. Differential diagnosis of auditory disorders—aphasia, deafness, autism, retardation. Emphasis upon development of language and communication through auditory, visual and tactile approaches. Teaching elementary school subjects and Braille to deaf-blind children. (Prerequisites: Ed. 263.2 must be taken concurrently with Ed. 221.23).
Sp. Ed. 262.2	Language for Young Deaf Children	The initiation and development of connected language for deaf children at preschool and elementary levels through speech reading. Language systems—particularly processes in a verbal framework. Graduate students only.
Sp. Ed. 262.3	Speech for Young Deaf Children	Structure, function and pathology of the speech and hearing mechanism. Motor and acoustic phonetics. Management of residual hearing; amplification systems and development of auditory skills to support speech improvement.
Sp. Ed. 121.13	Observation and Clinical Practice (Deaf-Blind)	Observing and participation in preschool and elementary school programs for deaf-blind children. Observations and course content will be closely coordinated. Must be taken concurrently with Ed. 263.2 (150 hours).

Sp. Ed. 221.23	Student Teaching Deaf-Blind	Student teaching under guidance of a supervising teacher. Required for program leading to standard or restricted teaching credentials who have cleared prerequisites. Must be taken concurrently with appropriate Ed. 221.3 course (250 hours).
Sp. Ed. 221.33	Student Teaching Seminar, Deaf-Blind	Student teaching seminars in the multiple roles of a teacher in planning, guiding and evaluating learning experiences for exceptional children. Must be taken concurrently with Ed. 221.2 series.
Sp. Ed. 161.7	Elementary Methods Teaching Blind and Partially Sighted	Preparation and selection of instructional materials for visually handicapped children; optical aids, large print, Braille, recordings and technological devices. Visually handicapped with additional problems. Comparable administrative and specific techniques and equipment to each area. Observations required.
Sp. Ed. 208.1	Educational Research	Identification and analysis of research problems; research methodology; research techniques, including sufficient familiarity with descriptive statistics to interpret research writing; application of research findings to school problems. Prerequisite: Consent of Graduate Advisor.
Sp. Ed. 160.1	Education of Exceptional Children	Types of physically, mentally, emotionally and socially handicapped children. Methods of diagnosis, suggested educational adjustments.
Sp. Ed. 260.1	Guidance and Counseling of the Handicapped	Techniques and organization of guidance services for physically, mentally and socially handicapped. Helping teachers work more effectively with parents. Role of aptitude and intelligence tests, counseling techniques, selective placement, physical, mental and emotional demands of suitable occupations.
Psych. 100	Learner & Society Growth & Development	Integrated study of learning, development, mental health and evaluation as they relate to individuals and groups in educational settings. Work-study experiences with children and youth. Required of candidates for credentials. Must be taken concurrently with Ed. 100. Classwork 4 units, Lab. 1 unit.

MULTIPLE HANDICAPPED (DEAF-BLIND) TEACHER TRAINING PROGRAM
SAN FRANCISCO STATE COLLEGE *(continued)*

Recommended Electives

Sp. Ed. 16[illegible].4	Beginning Braille	Mastery of Literary Braille Code. Preparation of Braille educational materials for school use. Minimum use of Taylor Code of mathematics; mastery of an experience with Nemeth Code as used in elementary schools.
Sp. Ed. 164.2	Physical & Neurological Disorders of the Cerebral Palsied and Orthopedically Handicapped	The causes, treatment and educational implications of physical and neurological disorders of children. Rehabilitation and life adjustment problems of individuals with single or multiple handicaps. Facilities and agencies organized to help meet the needs of the physically handicapped.
C.D. 165.20	Audiology	Seminar in the structure and function of the ear; study of sound as related to hearing mechanism; cause, implications of hearing loss. Aural rehabilitation including speech reading, auditory training, amplification and speech conservation and/or improvement.
Sp. Ed. 166.1	Curriculum and Methods of Teaching the Mentally Retarded	Organization and planning of school programs for the classroom teacher of the mentally retarded; curriculum development and teaching techniques. Observation in classes for the mentally retarded arranged.
Sp. Ed. 267.2	Curriculum for the Educationally Handicapped Child	Seminar in identification and diagnosis of the educationally and/or neurologically handicapped child's problems; evaluation of their meaning in the social, psychological, educational and personal development of the child. Collecting, recording and interpreting case study data.
Sp. Ed. 260.8	Education of the Emotionally Disturbed Child	Seminar in the education of children with emotional disturbances associated with other handicapping conditions. Adaptation of curriculum, methods of instruction, special materials and adjustment of classroom schedules and environment.

TRAINING OF CHILD CARE PERSONNEL FOR DEAF-BLIND CHILDREN

By Benjamin F. Smith

Director Elect, Perkins

Children who are both deaf and blind cannot develop intellectually and emotionally as normal children do without a great assisting effort from understanding adults. This is, of course, because these children are unable to receive visual and hearing stimuli from the environment as normal children do. Knowledgeable adults must find and exploit substitute pathways for sight and hearing to convey environmental information if these deaf-blind children are to be educated.

Because of this same severe limitation in effective interaction with the environment in an educational setting, deaf-blind children require a great amount of individual attention. In fact, most of the lessons in language building, communication skills, and concept awareness brought to these children by the teacher in the classroom must be conveyed on a one-to-one basis.

Both the normal child and the deaf-blind child, however, spend only a portion of their day in the classroom with the teacher, and on weekends there is no formal schooling for either. The seeing and hearing child, on the one hand, continues in these many out-of-school hours to grow educationally through active and meaningful interrelationship with his environment. Using his vision and hearing, he learns to imitate behavior patterns of adults and of peers. He acquires accurate concepts of form and space. He comes to recognize the subtle meaning and social implication in the casual glance and the spoken word.

Deaf-blind children, on the other hand, depending upon their degree of visual and auditory impairment, of course, are significantly sealed away from these important informal avenues to education. In fact, if they are to tap the rich educational stimulation of the non-formal environment, they require the same structured interpretation by another person that is provided in the formal classroom.

Ideally speaking then, we should have another knowledgeable, trained teacher to guide the deaf-blind child in his out-of-classroom hours. This plan, however, is rarely possible. In the first place, there are not enough highly trained teachers to meet this kind of demand. Furthermore, many trained teachers, accustomed to the orderly classroom routine of 9:00 a.m. to 4:00 p.m., are unwilling to undertake work schedules that include 6:30 a.m. to 9:00 a.m., and 4:00 p.m. to 8:00 or 9:00 p.m. Finally, salary scales for highly trained and qualified teachers are such that to involve two of them instead of one in each child's educational program could impose financial demands that are prohibitive.

As we have seen, on the other hand, deaf-blind children must have carefully structured supervision in the out-of-classroom hours of the day. The answer, obviously, is to involve less highly trained, less expensive personnel that is prepared to work early morning and late evening hours and even through the night, if necessary. In fact, this is the most common practice in programs where deaf-blind children are being educated. Young, unskilled girls just out of high school, older single women without much formal training, and some who have had as much as two years of college or junior college are most frequently available for this kind of service.

Truly, this type of personnel offers a rich reservoir of potential for child care service. Usually they are enthusiastic about the opportunity for working with children. Often, they present a warm, encouraging, secure image to the children they serve and can accept extreme behavior of children without offense to a rigid, already acquired personal code of morality. As a rule, they are physically energetic and willing to follow instructions and suggestions.

The features they almost always lack are experience and professional training. If we are to use this reservoir of child care personnel, therefore, and all logic indicates that we should, it is imperative that we provide careful training for them. Let us then examine some of the ingredients that should be included in a training program for child care personnel working with deaf-blind children.

Child Growth and Development

A child who is deaf and blind is first of all a child. As we know, deafness and blindness impose serious barriers in the path of the child's normal growth and development. Nevertheless, our educational goal for the deaf-blind child must be to help him overcome these barriers and enable him to grow and develop just as normally as possible. How well he succeeds in surmounting the barrier will depend largely on how skillful we are in our techniques of stimulating him.

Since much of this stimulation will be in the hands of child care workers, we must address our advices to them. If the worker is to help the child to grow and develop as much like normal children as possible, she must first understand the principles of normal child growth and development. Our training program, therefore, should have lectures, readings, demonstrations if possible, and discussions dealing with these principles. With this knowledge in the mind of the worker, she is then better able to appraise the behavior of her deaf-blind child in terms of growth and development and to recognize when her stimulation of the child is helping him toward desirable goals and when it is not. In the Perkins training program for child care personnel, approximately six one and one-half hour lectures are given on normal child growth and development to child care personnel by a qualified instructor.

Analysis of Deafness and Blindness

Closely interrelated with this information on normal child growth and development is a body of information associated with visual impairment and with hearing impairment. Our child care personnel need not be concerned with an understanding in depth of the medical, the anatomical, or even the physiological aspects of vision and hearing. They do need enough information, however, to understand something of the effect of various types and degrees of faulty vision and hearing upon the training and educational process. It is important, for example, for the worker to understand how various forms of visual field limitations affect a child's behavior or how nystagmus limits the seeing process. It is important, as another example, for her to have some understanding of how children with varying hearing losses actually do hear environmental stimuli and to learn how to make hearing patterns as meaningful as possible for the child in spite of the impairment.

One of the best ways of conveying the implications of visual and hearing impairment to child care workers is through case studies of the very children with whom they are working. The best instructors to use for the purpose are those who not only understand well the principles of normal child growth and development and have studied the physiology and psychology of seeing and hearing but who also have had extensive experience in guiding the educational process for these children.

Since many deaf-blind children have useful vision for which glasses are prescribed and since almost all of them find hearing aids beneficial, the child care worker should have instruction in the care and use of these sensory aids. The worker must learn to recognize when either glasses or hearing aid is out of adjustment or in need of cleaning. She must learn, also, when to attempt adjustment of these instruments herself and when to seek assistance of an expert. Usually, one or two instructional lectures and demonstrations by a technician in these devices serves the training needs of the child care worker.

Communication Skills

Meaningful communication between the deaf-blind child and the people in his environment is among the earliest and most important goals to be sought. Obviously, the child care worker will be an integral part of the team working with the child to reinforce these skills. Equally obvious, therefore, is the need to prepare the worker with a thorough understanding of the many and varied skills necessary. Lectures on non-verbal communication including gesture and signs will be needed. A short course in fingerspelling is essential. Depth studies in speech and language development may not be practical, but some knowledge of how to reinforce speech patterns in a variety of children is highly desirable. Case studies and demonstrations can be effective in this area. Applications to the workers' "own" children, of course, should be basic.

Child Management

Then we come to those activities with children which traditionally have been considered the sphere of the child care worker. These are generally known as daily living activities outside of the classroom and include such matters as the health and hygiene care of children, their daily living skills, recreation, and social interaction.

Certainly, the principles of good health and hygiene care of children are vital to the successful child care worker just as they are necessary to the successful mother. Such matters as recognizing and reporting the symptoms of an ill child, knowing how to read a thermometer, understanding the importance of and routines of administering medications, and the like, are all matters in which the worker should be instructed. Standards of cleanliness as they relate both to the bodies of the children and to their clothing and personal effects are also matters which the worker must thoroughly understand. Lectures on these and similar topics by a registered nurse who has had training and experience with children can be very beneficial.

When supervising normal children in regard to daily living skills, recreation activity, and social interaction, the primary goal is to lead the child to a high degree of independent competence in these matters. The primary goal with deaf-blind children is exactly the same. The accomplishment of the goal with these children, however, is much more difficult because of the faulty visual and auditory rapport the deaf-blind have with their environment dealt with earlier. Here the child care worker must have considerable instruction in how to structure the activities of the child so that the child will not only find them meaningful, but so that he will also want to acquire the skills necessary to perform them. The making of beds, the handling of tools and food at table, dressing and undressing, and the like, all must be given detailed attention.

Perhaps the subtlest and most difficult independent skills to bring to deaf-blind children are those associated with the social interaction of the child with other children and with adults. The severe limitations upon communication imposed on the child by deafness and blindness frustrate not only the child in his efforts at social interaction with others but also frustrate both the other children and adults as well as the child care worker whose responsibility it is to guide the deaf-blind child to social independence. Yet, only through meaningful interaction with others, particularly other children, can the deaf-blind child gain the experience necessary for adequate social growth.

Through the training program, therefore, the child care worker must be brought to understand fully her role as a bridge between the deaf-blind child and other children not doubly handicapped. She must be taught how to bring the children together, deaf-blind and non-deaf-blind, in ways that will reduce frustration between them and promote satisfying experience. As already indicated, this is not an easy process and requires much patience and usually advances very slowly.

This segment of the child care training program is probably best led by the highly experienced professional person who has had rounded training in the education of deaf-blind children. Perhaps the best way of approaching subjects in this area is through group discussions led by our trained and experienced professionals. Then each child care worker can bring to the discussion specific problems she is facing with her children in social interaction or in any other areas of child management. Case studies in this way can be very helpful to other workers in the group. Discussion sessions of this kind on a regular weekly basis beyond the limits of a short-term training course can be very helpful as an on-going, in-service training technique.

Interpersonal Relationships

Now we come to the last ingredient to be considered at this time in our training program for child care workers with deaf-blind children. In some ways, it might head the list of topics in importance, for it deals with the very important team-work aspect of handling deaf-blind children.

In a setting where numbers of deaf-blind children are brought together for education, there must be brought together also a comparatively large number of people to share in the educational process. This is particularly true in a residential setting. There must be a teacher and an aide for each three or four children. There should be a child care worker for each two children, with workers sharing responsibility for each other's children during time-off periods. In residential settings, there will be housemothers, other residential staff members, and cooks and maids. In whatever the setting, however, the chances are that a number of adults, not to forget mothers and fathers and social workers, are undoubtedly going to be sharing responsibility, or at least believing they are sharing responsibility, for the same deaf-blind child.

Now, human nature being as it is, and educating deaf-blind children being the frustrating process that it can be, the chances are also good that a number of the adults are going to find areas of disagreement as they share with each other the responsibility for educating these same children. In fact, disagreements between teacher and housemother, between child care worker and teacher, and between parent and any other personnel member have been known to reach torrid proportions where the normal bounds of cooperation, respect and courtesy have been submerged.

It would seem practical, therefore, to include a large dose of the principles of good human relations among the ingredients of our child care training program. There are probably no better tools for the worker than these principles if she is to add her share of positive cooperation to the joint effort and, at the same time, keep a cheerful, positive point of view. It is important, for example, for the worker to understand how poisonous unbridled criticism can be when thoughtlessly leveled at a fellow worker. It is important also for her to realize how indulging in idle gossip can return to haunt one, together with the animosity of those about one. Workers should realize as well that there is no sin in admitting that one has made a mistake as long as one does not repeat the same mistake again and again. The sin, in fact, lies in defending one's mistake as if it were *not* a mistake in spite of the fact that it is obvious to all that it *is* a mistake.

Then, there is the power of positive thinking and positive acting that should be understood by our worker. She should understand the happy feelings that arise when one praises a fellow worker when a job is well done. She should realize that doing a favor for a fellow worker or lightening her burden by some act of assistance not only creates a feeling of good will but also imposes a friendly obligation upon the other person to return the favor sometime.

There are a number of sound principles of good human relations of this kind that should be brought to the child care worker in a simple and direct way and, wherever possible, related to the local setting. Any person who understands these principles thoroughly and has had experience in articulating them to others may be enlisted to guide this section of the course. Many times, the saying has been quoted, "We have no problem children—we just have problem adults." A grounding in the understanding of good human relations can go far toward eliminating our problem adults.

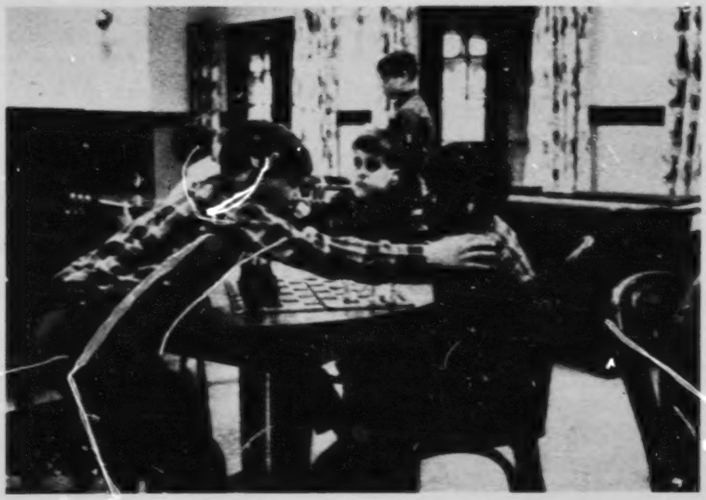
In-Service Training

There is, of course, an important place in the education of child care personnel for the formal training program suggested above. Training, however, should not cease with the end of the course. There should be provision for on-going, in-service training. One way to help this plan along is to have on the staff an experienced child care supervisor who has had training in the education of deaf-blind children. This person can include in her supervisory role regular group discussions dealing with a great variety of subjects directly related to the daily work activities of child care personnel.

Another way of providing training is to so arrange the work schedules of child care personnel that they spend a portion of their working day in the classroom under the direction of the trained teacher. The trained teacher is perhaps the best person to instruct the worker concerning communication problems of the child as well as his social and emotional needs.

The teacher also can be the best agent to encourage and revive the enthusiasm of the worker when the frustration of failure to meet expected goals with her deaf-blind children has leveled her morale. Certainly, working with the children for a time each day in the classroom will help the worker reinforce learning patterns more consistently and effectively in the out-of-class activities with the children.

The foregoing pages of comment, of course, are not intended as a detailed outline for a training course. They are designed to suggest subject areas that should be dealt with at length in order to provide meaningful training for child care workers of deaf-blind children.



Blind and deaf-blind boys playing games after school hours.

A REPORT

on

The Training Course for Child Care Workers and Housemothers
September, 1969-August, 1970
at Perkins School for the Blind

THE CARE OF DEAF-BLIND CHILDREN

This project was financed in part through a grant
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Title VI-C (Public Law 90-2-7).

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Section I

Introduction

In September, 1969, a training program for child care workers and housemothers involved with the care of deaf-blind children was initiated at Perkins School for the Blind. The need for such a program has been recognized for many years and has been partially met, in the past, by weekly meetings of child care workers and housemothers together with the Dean of Cottages and other appropriate Perkins personnel.

At these meetings, some basic training in important child care areas was provided; but, for the most part, the focus was upon current, specific problems regarding the handling of deaf-blind children and regarding the general functioning of the cottage program arranged for them. With the rapid increase, both present and projected, in enrollment in the Department for Deaf-Blind Children and in the number of child care workers necessary, particularly for the care of the many young rubella children, the need for a formal and thorough training program emerged as an urgent necessity.

The child care workers and the housemothers* play extremely important roles in the development, training and education of our deaf-blind children. During the many out-of-classroom hours, it is they who are mainly responsible for giving training in self-care and for providing social and educational experiences aimed at the attainment of the highest possible level of social growth. Perkins recognizes the great responsibility involved in the social training of deaf-blind children. The training course for child care workers and housemothers, entitled *The Care of Deaf-Blind Children*, is a means of providing the information and the guidance necessary for meeting this responsibility successfully.

The Training Course: A Brief Description of the Course Content

Part I—Normal Child Growth and Development: Therapeutic Child Management

Here, the focus is on normal development and typical behavior of children from infancy to adolescence. A major topic is child care management with special attention given to the use of daily events and activities as teaching opportunities and to the ways of helping children deal with their feelings.

During the discussion periods following each lecture on the normal child, the implications of the lecture content for children with auditory-visual impairment are stressed. Effort is made to help the child care workers and housemothers understand the developmental aspects of the behavior of the handicapped children in their care and to know the sequential goals for which to aim.

Part II—Children with Auditory-Visual Impairment: Their Social Growth and Development; The Role of the Child Care Worker and the Housemother in This Development

Lectures in this area constitute the majority of the sessions of the course. Specifically, they deal with such topics as: Definition of a Deaf-Blind Child; Vision and Hearing; Visual and Auditory Disorders; Social and Educational Implications of Blindness and Deafness; Social Growth and Development of Deaf-Blind Children;

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* Housemothers are child care workers in reality. At Perkins, however, we differentiate between housemothers and child care workers and use the term "child care worker" to indicate the young women and men who work directly with the deaf-blind children in the after-school hours under the immediate supervision of the cottage housemothers.

Development of Language and Communication in Deaf-Blind Children; Development of Self-Care Skills; Motor Development and Recreational Activities; Intellectual Development; The Child Care Worker and the Teacher; Definition of Roles of Child Care Worker and Housemother.

Lecture material is applied directly to the children in the Department for Deaf-Blind Children at Perkins in order to make it as practical and useful as possible. Opportunities and procedures for fostering a child's social development are pointed out with particular emphasis on language, communication and self-help skills. The vital importance of the child care worker and the housemother is stressed.

Part III—Perkins Policies and Philosophies Regarding Deaf-Blind Children, Child Care Workers and Housemothers; Relationships and Communication Among Staff Members

Some of the topics for discussion in this area: Health Care of the Children; After-School and Weekend Activities; Allowances and the Spending of Money; Integration with the Blind Children in the School; Child Care Workers and the Parents; Work Schedules and Time Off; Definition of Roles of Administrative Personnel and of All Staff Members Concerned with Deaf-Blind Children.

The necessity for good inter-personnel communication is stressed with emphasis upon the value to all staff members, and to the children, of free-flowing communication. Some lecture topics in this area: Administrative Expectations Concerning Inter-personnel Communication; Desired Channels of Communication: Barriers to Communication and Ways of Overcoming Them; Basic Principles Involved in Positive, Inter-personnel Relationships.

The Lectures

The course began in September of 1969 and continued through April, 1970. There were 48 lectures in all, usually two a week; the sessions were one and one-half hours in length with the last half hour devoted to discussion with emphasis on relating the lecture material to children with combined auditory-visual impairment. The lectures focused upon the areas described above and included a series of six lectures on Child Growth and Development and six lectures on Therapeutic Child Management, presented by a guest lecturer. Also included was a Seminar consisting of six sessions conducted by the staff of the Boston University Human Relations Center.

The Perkins Certificate

The course for child care workers and housemothers is designed as an in-service training program. Perkins gives a certificate indicating satisfactory completion of the course.

During 1969-70, child care workers and housemothers were not required to take the training course. In order to receive the certificate, however, it was necessary to attend at least two-thirds of the lectures.

The stipulation that at least two-thirds of the lectures must be attended is a lenient one, but it was made because of the work schedule of the child care personnel. Although lecture dates are "staggered" in such a way that during the year an equal number of lectures fall on each day of the week, there are always a number of people off duty on lecture days.

In order to take this into account and to minimize the number of days when a day off might have to be given in order to attend a lecture, attendance at only two-thirds of the lectures was required for certification. Lectures were taped and, therefore, could be listened to at another time. Half-credit was given for listening to the tape of a lecture missed when off duty.

At the conclusion of the course in the spring of 1970, nineteen child care workers and housemothers had earned the Perkins Certificate for the satisfactory completion of the course, *The Care of Deaf-Blind Children*. Of the total group, seven were child care workers and twelve were housemothers.

> *Child Care Workers:* Only ten child care workers were, in fact, candidates for the certificate because only these ten were at Perkins throughout the school year. Seven additional child care workers were here for approximately the first half of the year and then left Perkins; another seven came as replacements for those who left.* Those fourteen child care workers, therefore, were at Perkins only about half of the time during which the course was given.

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* Among the child care workers, the yearly turnover is particularly high due to the fact that many of these young women leave Perkins because they wish to continue their schooling or to marry.

Of the ten child care workers who were here all year, three did not attend a sufficient number of lectures and, therefore, did not receive the certificate.

Housemothers: Twenty-two housemothers were eligible for the certificate in that they were at Perkins throughout the school year. Of this number, twelve received the certificate. Five housemothers, in addition to the twenty-two, were not eligible because they were not at Perkins the entire year.

Many of the child care workers who were at Perkins only part of the year came quite regularly to the lectures. All of those who were at Perkins during the last half of the year and expect to return in the fall have said that in 1970-71, they intend to go to the lectures which they missed last year. Some have said that they would like to attend all the lectures.

A number of housemothers who did not receive the certificate went to many lectures but, because of days off and of illness in their cottages, did not attend the required number. As a group, the housemothers seemed enthusiastic about the course.

Additional Facts and Comments

Materials: In connection with the training course, the following materials were provided:

- —A Syllabus for the course, including topical paragraphs for each lecture.
- —A Course Calendar listing the dates and topics of each lecture.
- —Information concerning the children.
- —Specific suggestions for fostering development in self-help skills, communication and language, play and other abilities.
- —Other materials such as social maturity scales, developmental sequences of behavior and a suggested reading list.

Invited Non-Perkins Child Care Workers: Six young women who are child care workers at the Walter E. Fernald School, a state school for the retarded, attended the lectures quite regularly after a late start. These young women are working with trainable, rubella children with auditory-visual impairment. They expressed their desire to take the complete course in 1970-71 and to receive the Perkins Certificate.

Short Course in Finger-Spelling: Because finger-spelling is the method of communication most appropriate for some of our children, a course in finger-spelling was given to the child care workers and housemothers early in September, 1969. The course consisted of four one-hour sessions.

Workers who were directly responsible for children who use finger-spelling were expected to attend. Those who had previous knowledge and experience with finger-spelling were asked to attend one or two lectures for the purpose of review.

Monthly Friday Meetings: Once a month, on Friday mornings at nine o'clock, meetings were held for the purpose of discussing and resolving current, specific problems regarding the handling of children and regarding the operation of the program. These meetings were separate from the scheduled lectures for the course but, very frequently, lecture material was pertinent and applicable to the problems and topics being discussed.

Meetings with Teachers: Formal and informal meetings between child care workers and teachers were arranged and encouraged in the effort to attain the maximum of knowledge and cooperation concerning the children. The abilities and problems of the children as well as methods of handling were topics of discussion. The emphasis was upon the need for consistency of approach in the classrooms and in the cottages.

The Child Care Workers in the Classroom: A few hours of observation of their children in the classroom were scheduled for the child care workers, and for the housemothers if they wished, during the year. Also, occasional visiting in the classroom was encouraged by the teacher. When teacher trainees were not available to substitute or to assist when necessary, child care workers were asked to help if they so desired and were paid for the time spent in the classroom.

Lecturers: Lecturers who participated in the training course are listed at the end of this report.

Section II

The Year 1970-71—A Projection

Decision to Repeat the Course: Because of the increase in personnel necessary to give adequate care to our large number of deaf-blind children* and because there are new members of the child care staff as a result of turnover, there is justification and need for repeating the Training Course for Child Care Workers and Housemothers during the school year of 1970-71. This program will not, however, be financed by Federal Funds; the cost will be borne entirely by Perkins School for the Blind.

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* At the time of writing, 58 children are enrolled in the Department for Deaf-Blind Children for the school year 1970-71.

Estimated Number Taking the Course: It is estimated that twenty-eight child care workers and junior housemothers will take the course. It is expected that a number of senior and relief housemothers will take it also. Furthermore, there will be a group of five or six young women from the Walter E. Fernald School mentioned in Section I.

Proposed Changes in the Course:

1. Instead of continuing from September through the following April, the course will be compressed and will end at the beginning of February, 1971. Reasons for this change are as follows:

- —It is important to give the child care workers and housemothers the course information as early in the year as possible. Obviously, this is to their advantage and to the advantage of the children.
- —Some of the material presented in the series of lectures on Normal Child Growth and Development and in the sessions devoted to Human Relationships and Communication proved to be repetitious or appropriate for incorporation in other lectures or insufficiently pertinent to the course. Therefore, in 1970-71, there will be fewer lectures in the series on Normal Growth and Development. Also, the sessions which were conducted in association with the Boston University Human Relations Center will not be resumed; much of the subject matter for these sessions, however, will continue to be part of the course.
- —It is desirable to alleviate the problems which are presented by the necessity for scheduling lectures on days off. With the termination of the course at the beginning of February, days off will not be interrupted by lectures during the latter part of the year.

2. In 1970-71, the satisfactory completion of the training course will be a requirement for child care workers and junior housemothers who expect to return to Perkins the following year. It is hoped that senior and relief housemothers, although not required

to do so, may be interested in taking the course with the goal of receiving the Perkins Certificate.

3. Attendance at three-fourths, rather than two-thirds, of the lectures will be required for attainment of the Certificate.

4. Suffolk University, in Boston, is being contacted concerning the Associate Arts Program in Child Care which is offered there. The possibility of arranging for a series of lectures by a Suffolk instructor is being explored.

5. We recognize the importance of regular meetings between a child's teacher and his child care worker and housemother for discussion of the child's abilities and problems and for the cooperative effort necessary for his maximum progress and happiness in both the school and cottage setting. Therefore, in addition to the course lectures and to the monthly Friday morning meetings (mentioned in Section I), we intend to increase the number and the regularity of meetings of teachers and child care workers and housemothers.

Section III

Summary Statement

It is our opinion that considerable gain, to the children and to Perkins as a whole, has resulted from the training course conducted for child care workers and housemothers.

There is evidence that the information provided by the course has made our child care staff more knowledgeable and more competent in their work with the children in their care. It follows, therefore, that the children, who are indeed our prime concern, have benefited from the fact that there is a training course for those who supervise them in the after-school hours.

The course has led to improved relationships among child care personnel and between cottage staff and teachers and between cottage staff and administration.

As an outgrowth of the course, two committees of child care workers and housemothers were formed. These committees have presented reports incorporating a number of suggestions to the administration. The administration is already forming plans to meet with these committees. The expectation is that communication and relationships between child care staff and the administration will be improved as a result.

Because of the broad scope of the course, many aspects of the Perkins program, including cottage life, the academic program and the administrative policies, have been topics for discussion. We feel that child care workers and housemothers are now more cognizant of the total functioning of the school and of their part in it. As a result, there seems to be a greater sense of unity.

Finally, our impression is that the positions of child care worker and housemother have been strengthened and elevated in terms of professional status as a result of our training course. The child care staff and, in fact, the entire school, has come to a fuller awareness of the vital importance of child care work.

LECTURERS—1969–1970

Part I

The lectures in Part I were given by:

Albert E. Trieschman, Ph.D. Dr. Trieschman is the Director of the Walker Home for Children in Needham, Massachusetts. He is Supervising Psychologist in the Psychiatry Department, Children's Hospital Medical Center in Boston. He is engaged in the private practice of psychotherapy and diagnostic evaluation of children. His publications are numerous. Some of them were suggested reading in this course.

Dr. Bernard Levine and Mr. Robert J. Paradise, of the staff of the Walker Home, were guest lecturers.

Part II and Part III

The lectures in Part II and Part III, during the first half of the course (from September 5, 1969 to the Christmas recess), were given by the following people, all of whom are members of the staff of Perkins School for the Blind:

Miss Elizabeth Banta	—Supervisor of Pre-School Program and Parent Counseling
Mrs. Christine Castro	—Supervising Teacher, Department for Deaf-Blind Children
Mr. Lars Guldager	—Assistant Principal, Department for Deaf-Blind Children; Coordinator of New England Center for Deaf-Blind Children
Mr. William T. Heisler	—Head, Department of Teacher Training
Mr. Lewis Huffman	—Coordinator of Audio-Visual Equipment, Department for Deaf-Blind Children
Miss Mildred O'Keefe	—Resident Nurse
Miss Nan Robbins	—Diagnostician, Department for Deaf-Blind Children; Coordinator of Course Content for Teacher Training Program
Mr. Benjamin F. Smith	—Assistant Director of Perkins School for the Blind
Mrs. Gertrude Stenquist	—Supervisor of Child Care; Diagnostician, Department for Deaf-Blind Children
Mrs. Rose Vivian	—Principal, Department for Deaf-Blind Children at Perkins; Coordinator of Teacher Training Program
Dr. Harold Wolman	—Consulting Psychiatrist

Additional lecturers in the last half of the course (from January through April, 1970) were as follows:

Mr. Dennis Bowers	—Staff, Boston University Human Relations Center
Mr. David Brower	—Staff, Boston University Human Relations Center
Mr. and Mrs. Leonard Dowdy	—Deaf-Blind Adults; Guest Lecturers from Kansas City, Kansas
Mrs. Jane Elioseff	—Diagnostician, Department for Deaf-Blind Children at Perkins School for the Blind
Mr. Claude Ellis	—Principal, Perkins School for the Blind
Mr. Clifford Falby	—President, New England Association of Child Care Personnel; Director, New England Home for Little Wanderers
Mr. William Howat	—Head, Industrial Arts Department, Perkins School for the Blind
Miss Carol Johnson	—Head Teacher, Pre-School for Deaf-Blind Children, Perkins School for the Blind
Miss Eunice Kenyon	—Director, Boston Center for Blind Children
Mrs. Elizabeth Lech	—Teacher, Department for Deaf-Blind Children, Perkins School for the Blind

Teacher and young deaf-blind children.

INTERIM REPORT ON SURVEY OF MULTI-HANDICAPPED BLIND SCHOOL LEAVERS IN BRITAIN

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Historical

Since a good deal of what I shall state in this paper is based on personal opinion, I must give some information on my background and the reasons which prompted the survey. All the school leavers with which the survey is concerned are ex-pupils of Condover Hall School for Blind Children with Other Handicaps. This school was opened in 1948 by the Royal National Institute for the Blind and takes children, multi-handicapped children, of all types. At first deaf-blind children were not included, but a few were taken on an experimental basis in 1952. The experimental period lasted seven years until a special department was opened in the grounds of Condover Hall School in 1959. In Britain, therefore, deaf-blind pupils are part of a school for multi-handicapped blind children. Sweden has a long history of this approach to the education of the deaf-blind, dating back to the 19th century. I am interested to hear that this pattern of the deaf-blind among other multi-handicapped children has also been adopted for some fairly new schools in the U.S.A. (Deaf-blind children at the St. Michielsgestel School for the Deaf in Holland are part of a larger department for multi-handicapped deaf children within a school for deaf children.) I understand, however, that most people attending this Congress work in departments associated with either schools for the blind or schools for the deaf, where children of different types of multi-handicaps are often not admitted.

Historically, in quite a number of countries, the deaf-blind have been the first group of multi-handicapped blind or multi-handicapped deaf children to receive educational help. The great problem confronting the U.S.A. with the sudden huge increase of rubella children is another factor which emphasises the needs of the deaf-blind. Although children, whose difficulties of communication are associated with deficits of hearing and vision, present probably the most challenging problems in education and welfare, we must not forget that children with other multi-handicaps are also in great need of help. I and, I think, others whose background in dealing with deaf-blind children is based on work with a variety of other multi-handicapped children, see deaf-blind children as an important part, but nevertheless numerically comparatively small part, of the education of multi-handicapped children.

When, after 23 years at Condover Hall School, I retired from teaching, I was fortunate to be appointed as a research assistant at Birmingham University. In this new post I am able to carry out an enquiry long advocated by the Governors of Condover Hall—i.e. a research into the present situation of all pupils who have ever attended the school. This includes, of course, deaf-blind children who have left Pathways and I base the interim report which I present to you a good deal upon these children, though they are part of a wider enquiry. I will now present some approximate statistics in "iceberg" form which will keep the needs of the deaf-blind in perspective, and also make quickly clear other facets of my enquiry.

Multi-handicapped Blind Children in Britain

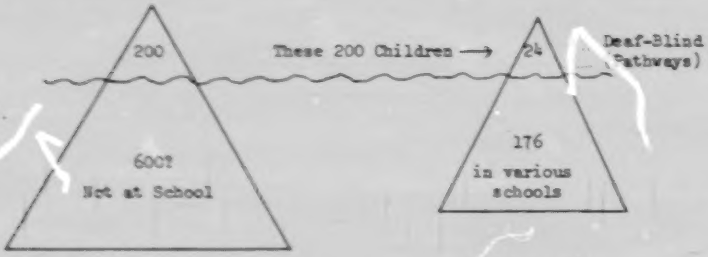
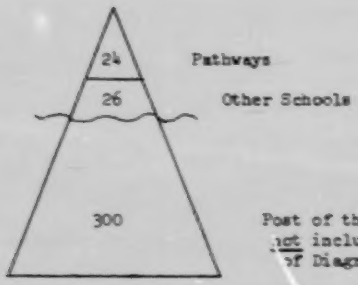


Diagram 1 Diagram 2

In Britain we have a nearly complete service of registration of handicapped children. The large number of approximately 600 children who are not at school are, presumably, more seriously handicapped than the most severely afflicted children at Condover, where the pupils include some in the I.Q. range of 45-50, some physically handicapped children who cannot walk and quite a number of children with severe behaviour difficulties. The wavy line in diagram 1 separates the "educable" from the "ineducable" though no one would claim that the evaluation is complete and infallible—far from it! Of the 200 children at school nearly half are at Condover Hall, including the deaf-blind, the others being mostly in residential nursery schools known as Sunshine Homes and at Rushton Hall Primary School.

In diagram 2, the small proportion of deaf-blind is emphasised but, in Britain we, too, have an increase of rubella children and I present another "iceberg", diagram 3, concerning rubella children of school age.



Post of these 300 are
not included in the 600
of Diagram 1.

Diagram 3

Again, with reservations concerning evaluation, I have to point to the large number of children not at school, approximately 300, compared with the 50 who are likely to become "educated". What I mean by "educated" will become clearer when I describe my research survey.

Members of the British Association of Parents of Deaf-Blind and Rubella Children must have been very distressed with the slowness with which their children were assessed and dealt with educationally. Naturally, and perhaps no one is to blame for this, they were led to believe that specialised education would succeed with their children. Not enough emphasis was laid on the presence of severe multiple handicaps and brain damage in most of the children which would seriously hinder progress. I have the impression that the parents now have a more realistic appraisal of their children and that their main efforts are concentrated on ensuring that, as children and adults, their sons and daughters shall not be excluded from the national facilities for the handicapped. Members of the Rubella Association do, I hope, realise that they have made an important contribution to the great stride forward which was taken in the United Kingdom on 1st April, 1971, when it was enacted that all children are now the responsibility of Education Authorities. No longer will the "ineducable" and "trainable" be dealt with separately by the Health Authorities. This law, of course, does not change children miraculously but it implies the improvement of facilities, finance and staffing for all severely handicapped children.

I will now pass to the interim report on my survey of ex-Condover pupils in which I am not considering deaf-blind children differently from other multi-handicapped children. In this paper, however, I do lay stress on the deaf-blind children who have left Pathways after having been admitted formally and not merely assessed. I present one final diagram, to put deaf-blind children in perspective with all the other leavers.

Condover Hall Leavers (N = 400)

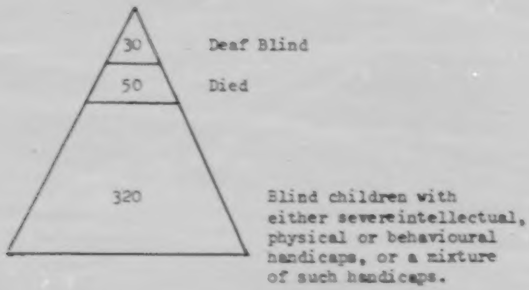

30
Deaf Blind
50
Died
320
Blind children with either severe intellectual, physical or behavioural handicaps, or a mixture of such handicaps.

Diagram 4

Present and Projected Facilities in Britain

I am extremely interested to know how the 350 young men and women, who are still alive, have fitted into the national facilities for handicapped compared with the voluntary specialised facilities for multi-handicapped blind adults.

Of the latter, these are three:

(a) A residential occupation centre for approximately 200, 30 ex-Condover pupils are there, but there are no vacancies.

(b) A day occupation centre in a large city where 30 multi-handicapped blind people are cared for, including 4 ex-Condover pupils. At present there are no vacancies.

(c) A residential occupation centre for 20 severely physically handicapped adults, taking people from anywhere in the country. At present, in this very new centre there are 9 ex-Condover pupils and there are 5 vacancies.

The national facilities, based mainly on local authorities, have arisen from laws passed in 1948 and 1958. The implementation is far from complete, but, legally, Local Authorities must provide the following facilities. There is one exception, namely that those people who are hospitalised are the responsibility of the Regional Hospital Boards.

The facilities are these:

A. Placement into economically independent work.
B. Sheltered work centres, where the workers, who could not be expected to face the rigours of open employment, nevertheless are expected to approach normal standards of speed and skill.
C. Day Training Centres which are not mainly concerned with training but are Day Occupation Centres where the work provided varies from diversionary occupations to some real effective work at slow speeds. Associated residential facilities.
D. Complete care.

Financial Rewards

If I now give an idea of the financial rewards this may help to clarify the situation. Remember that I am speaking of additionally handicapped blind people, not of the many blind people who have no other handicaps and are quite normal wage earners.

A. A very few Condover leavers achieve this standard. They are earning wages at below average to low average rates, i.e. £11 to £20 per week. An average wage would be about £25 per week.
B. Very few facilities of this type are available for ex-Condover pupils. Wages vary considerably according to the amount of subsidy granted to bolster up "real" wages.
C. Social Security payment of £7.30 per week plus up to £2 per week "wages". Where wages exceed £2, deductions from Social Security pay takes place. Often there are fringe benefits of free meals and travel.

D. Social Security payments are incorporated into the cost of hospitalisation or residential care, which is provided free. Pocket money is paid where appropriate.

I must emphasise that the provision of these facilities is far from complete and there is considerable variation among Social Authorities. In a few areas there is already nearly complete provision, but in others the services are very inadequate. Therefore for my ex-Condover pupils' survey I had to add a fifth category:

E. Nothing has been done.

Statistics of Pathways ex-Pupils

The following table shows what has happened to the children who have left Pathways.

PATHWAYS EX-PUPILS. N = 31

	Column I			*Column II*		
	Left at age 16+			*Left before age 16*		
		Residence			*Residence*	
	Occupation	*Home*	*Hostel*	*Occupation*	*Home*	*Hostel*
Category A	3	2	1	1	1	
B	1	1				
C	5	4	1	1	1	
D	0			11		11
E	2	2		1	1	
Died	0			1		
Untraced	0			5	?	?
Total	11	9		20		

I add some notes on the above statistics:

Category A In column I the three pupils were very capable, one exceptionally so. The latter is employed as teacher at Pathways. The other two work in repetitive jobs in normal industry. None of the three was a Rubella child. In column II the one girl in category A was transferred from Pathways to a school for the partially sighted.

Category B The only person in this category is employed in his own family's business, which is not exactly a "sheltered work centre" but this seemed the appropriate category to describe this young man's placement.

Category C In column I, one person is in a specialised residential centre for the blind, the other four are in day centres. Only one of the four has the possibility of residing in a hostel. Three perform effectively and one of these may well prove to be in category A or B. The fourth is at diversionary level. The one girl in column II is still of school age and is attending a day centre for severely retarded children.

Category D All 11 ex-pupils are in hospitals for the severely subnormal and only 3 are likely to achieve any sort of occupation at what I may describe as "C" level.

Category E Both ex-pupils in column I have not yet been placed in work, both are capable of B, or even A, placement. The girl in column II is at home and ought probably to be in hospital.

Untraced 2 of these pupils emigrated with their parents to South Africa and I understand they could be placed in Category C. The latest information about the other 3, at least three years ago, indicates that they are probably now in hospital.

Some General Observations

I wish to make 6 general observations:

(i) The reason that so many pupils left Pathways before the age of 16 is explained by the fact that until about five years ago the school was performing two functions—providing an educational programme and carrying out a very long-term residential assessment scheme. Many of the 19 pupils concerned continued at school long after it was obvious that the children were "ineducable".

(ii) Pathways still continues to have an assessment programme but this is restricted to a residential period of 11 days. Experience has shown that very few children now being presented for assessment are likely to be "educable"—possible 10-15%.

(iii) Diagram 3 supports the statement I have just made in paragraph (ii).

(iv) Pupils who have completed the educational programme in the past, and certainly those children at present at Pathways are, on average, more capable than the other multi-handicapped children in the main school at Condover. Most of Pathways present children, all of whom have some sight, are likely to achieve either Category A or Category B.

(v) The 26 rubella children at school elsewhere than at Pathways are less capable than Pathways children and most are likely to achieve Category C.

(vi) I am a long way from the end of my enquiry into the present position of all Condover ex-pupils. At this stage, however, I see no reason to differentiate between the needs of deaf-blind children and their parents on the one hand, and the needs of other types of multi-handicapped blind children and their parents on the other.

Please bear in mind these general statements when you consider the following observations arising from my enquiry.

Some Conclusions Based on the Enquiry

While, when the survey is completed, I may have other conclusions to state, I am convinced that I shall not modify the statement I will now make. I present some important conclusions under five headings.

1. The parental dilemma

When their children have left school, the parents are faced more positively than ever before, with what the young men and women are going to do and where they are going to live. Often too, I think parents have deferred facing the problem of the severity of their children's handicaps. Many parents naturally find it difficult to accept that their children have a severe intellectual or behavioural handicap, or both, and that these handicaps cannot be remedied. Natural love and pride prompt good parents, prompt them to decide that they will care for their children, but behind all this lies the worrying thought of what will happen when they, the parents, die or become incapable of caring for their children.

I feel that, towards the end of a professional lifetime, spent mostly in the education of handicapped children, I ought to express some firm opinions and I summarise them thus, in a direct statement to parents:

"You have supported your multi-handicapped son or daughter for many years. The services and advice available for you have largely been inadequate. This is inevitable because of the severity of the handicaps and the individual nature of your child, your own circumstances and the financial difficulties of providing services and facilities. People who have tried to help you have either been aware of their own inadequacy or have been insensitive and unaware of your problems.

"Now that your son or daughter is becoming adult you must do your best to face facts as objectively as possible. Love, pride, feelings of guilt, fear of what other people may say, should not hinder you from making arrangements for your son or daughter. Separation by death is inevitable. In making immediate or deferred arrangements for care you should face certain issues squarely:

"Young handicapped men and women have need of your continuing love and care but they may need also, companionship of people of their own age.

"Such companionship may most easily be effected by allowing your child to join activities, including residential facilities, provided for handicapped people whom you may consider more seriously affected than your child.

"If you feel discomfort in allowing your son or daughter to be cared for by the community's facilities for handicapped adults, you could always help financially or by personal service to the organisations providing the facilities".

2. *Integrated services*

Those people who provide education for deaf-blind children and for multi-handicapped children should relate their educational work to the eventual occupations of the children. Though no opportunity should be missed to offer wide intellectual education to suitable pupils, most multi-handicapped children need an educational programme of social and practical matters and geared to their occupation and general life after leaving school. School staffs should therefore be continually aware of what post-school facilities are available and should be prepared to help in the transfer from education to occupation.

3. *Priorities*

In Britain the main drive for improvement of facilities is not for completely new types of provision. We have to press for the provision of facilities already legislated for by Parliament. Priorities are the humanisation and "domestication" of hospitals and the provision of many more hostels in association with the Day Occupation Centres.

4. *Attitudes of Staffs of Day Centres*

It is often necessary to persuade staff, who are dealing with many types of multi-handicapped people, that they should not exclude the blind and deaf-blind. Staff unexperienced in dealing with such people are over-concerned about the difficulties in taking them into their centres and plead that they have no training in caring for the blind and deaf-blind. So much depends on the personal attitudes of the staffs of these centres. We must encourage them and, where necessary, offer help in the initial integration of the blind or deaf-blind into the centres. We must be careful not to exaggerate our specialised area of education so that it appears some kind of esoteric mystique. Already I have seen good examples of the successful integration of multi-handicapped blind adults into Centres by staff who had no special blind or deaf-blind training.

5. *Feed-back to Schools*

One of the objectives of my survey, much stressed by the Governors of the school, is that I should feed back to Condover information which may be useful to the staff of the school. I am already doing this and I hope you will agree that some of the items which I have sent to Condover, and which I list below, have a wider significance than for one English School.

(i) All your efforts to establish self-care are vitally important. Often they have been rewarded by people's surprised pleasure in recognition of former pupils' independence.

(ii) Cleanliness, tidiness, eating skills are particularly important.

(iii) Do all you can to:

  (a) promote controlled, unobtrusive, co-operative behaviour,
  (b) encourage children to work happily in small groups in combined and "conveyor belt" work,
  (c) find ways to give experience in careful movement in workshop conditions, going as far as making occasional changes in existing lay-outs.

(iv) People have often said that ex-Condover pupils are polite, well-mannered and helpful. Keep it up!

(v) Your good work in mobility training in the school and in its grounds, and the training scheme beyond the school, sometimes does not transfer to Work Centre conditions.

(vi) The staff of some Centres seem quite unaware of the positive abilities of ex-Condover pupils.

(vii) What can you do to remedy the difficulties expressed in (v) and (vi)? This is a most important point where our ex-pupil is the first blind person in a centre.

(viii) Provide many and varied experiences so that young people give an impression of skill and versatility in simple operations. I list some of the operations I have seen in centres. The one skill which seems more important than all others, I put at the head of the list. In all manipulations increase in speed after mastering of a skill is vital.

(a) Counting objects repeatedly and accurately.
(b) Use of jigs of many types.
(c) Packing.
(d) Wrapping.
(e) Tying.
(f) Use of scissors, guillotine, hammers, pliers, screwdrivers.
(g) Laundry machine operating. (Large-scale Laundry is often an important activity where residential facilities are associated with a Centre.)
(h) Simple machines -drills, saws, presses.

SYSTEMATIC STUDIES OF STIMULUS SENSITIVITY IN DEAF-BLIND PRESCHOOL CHILDREN

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and
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Abstract

Eighteen deaf-blind retarded preschool rubella children were tested with an operant procedure which allowed them to choose preferred illumination as reinforcement for responses on a simple two-choice lever switch. The purpose of the program was to evaluate light sensitivity systematically with children among whom such assessments are not customarily considered possible. It was the rationale of the program that it is essential to assess the boundary conditions of children's visual competence and disabilities as a prerequisite for planning educational procedures that take maximum advantage of their residual vision.

The testing program consisted of four levels of primary light discrimination preference and three levels of comparison light discrimination preference. Light intensity levels in the primary phase were 300 vs. 0 foot-candles (FC); 150 vs. 0 FC; 75 vs. 0 FC; and 5 vs. 0 FC. Intensity levels in the comparison phase were 300 vs. 10 FC; 150 vs. 10 FC; and 75 vs. 10 FC. The children were tested repeatedly at each level in standard five-minute sessions until they passed or failed a uniform criterion of preferential performance.

It was unambiguously clear from the extensive data record that 15 children in the group showed light sensitivity down to 5 foot-candles of intensity. It was equally clear that most of the group also showed light sensitivity at even lower levels, but a minor limitation of the instrument system prevented systematic testing below 5 foot-candles in this initial procedure. A more extensive evaluation program is now in preparation.

The conclusive results in this assessment of light sensitivity suggest important implications for further assessment and for educational programming. It is indicated that comparable methods of evaluation can be applied to measuring other critical aspects of

visual experience such as sensitivity to contour, movement, color, figure/ground relationships, and symbolic representation. With respect to educational planning, it is suggested that the systematic measurement of residual visual capability can lead to the development of enhanced teaching objectives and techniques.

Portions of this research were supported by Grant #C-278 from Maternal and Child Health Services, Health Services and Mental Health Administration.

TABLE I

Number of Deaf-Blind Rubella Preschool Children Establishing Systematic Behavioral Selection of Regulated Light Intensities

N = 18
Light Discrimination

	Number
Primary	
300 vs 0 Foot-candles	16
150 vs 0 Foot-candles	16
75 vs 0 Foot-candles	16
5 vs 0 Foot-candles	15*
Comparison	
300 vs 10 Foot-candles	13
150 vs 10 Foot-candles	12
75 vs 10 Foot-candles	9
Response Reversal Adaptation	
Intersession	15
Intrasession	12

* 1 child became ill and was withdrawn from the program after completing the 75 vs 0 task.

SOME GENERAL PRINCIPLES OF BEHAVIOR MODIFICATION

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How do people learn? How can we change behavior patterns? Research regarding the process of animal and human learning has been conducted since the late 1800's in almost every psychological research laboratory in the world. This paper will summarize some of the basic principles of learning theory and behavior changes which can systematically be utilized in education regardless of the capabilities or special problems of those being educated.

In the past, it has been the opinion of many that there is very little that can be done with handicapped individuals. The notion being that they remain relatively unchanged and unchangeable throughout their lives. Those of us who utilize the principles of behavior modification do not believe this. Central to the belief that individuals change and can be changed is that people act the way they do because of the *way they have been treated*. This includes living up to (or down to, if you will) the expectations of others which become internalized to self-expectations. Furthermore, a growing body of research supports the belief that severely impaired individuals, previously thought uneducable, can master a large number of skills.

Behavior modification is defined as systematically structuring the environment, rewards, and goals so as to change or maintain behavior. At this point no value judgments are placed on behavior, rewards or goals, although this is an area which deserves serious consideration.

Let's start with an ABC approach to behavior. A stands for antecedent conditions, B stands for behavior, and C stands for the consequence following the behavior. A influences B, B affects C, and C in turn affects A. This repetitive, cyclical nature of behavior will become more apparent through the paper and at the conference discussion group.

A stands for antecedent conditions. That is, all conditions which preclude and surround an individual at any given moment, such as supplies for a task, sequence of tasks, physical environment, attitudes of individual, etc. Before a child can select a crayon (a unit of behavior) out of a group of objects, he must have the objects in front of him. The group of objects would constitute an antecedent condition necessary for the behavior. The child cannot carry out the task unless this condition is met. Another child may be able to function only when seated in a cubicle. The cubicle is an antecedent condition. Breaking down a complex task into simple steps would also constitute an antecedent condition which may be determined by the appropriateness (or inappropriateness) of a response, and whether or not it is rewarded.

B stands for behavior. When behavior is discussed in terms of behavior modification, it means very specific units of behavior which can be defined and counted. "Waving arms for 12 minutes" is measurable as opposed to "immature" which may mean different things under different conditions. It is essential to talk about behavior in specific terms if we are to systematically deal with it. Think of all the terms you have heard used or seen describing children: "Low I.Q.", "unmanageable", "lazy", and "unmotivated" are just a few terms which are difficult to define and specify. Just how does one tackle the problem of "motivation"? It is possible, however, to break down these broad concepts into observable, countable units of behavior. It also is possible to further define conditions and circumstances surrounding the behavior. A statement describing behavior in this manner is, "Mary is able to select three wooden cubes out of seven wooden geometric forms placed before her. She is able to perform this task for seven minutes when she is standing at a table."

C stands for consequences of behavior, i.e. what happens *immediately after* a behavior occurs. There are three possibilities which can occur: a behavior is rewarded, a behavior is punished, a behavior is ignored. Each of these consequences has certain predictable effects on whether or not the same behavior will tend to occur again.

A reward is a consequence immediately following a behavior which *increases* the *likelihood* that the same behavior will occur again. A reward is also called positive reinforcement. If a child selects the correct crayon from a group of objects and receives a piece of candy, verbal praise or a hug or all of these together, chances are increased that he will continue to select the crayon the next time he is given that task. One important characteristic of rewards is that they are effective only if the individual receiving the reward sees it as such. What one individual sees as a reward another may see as having little or no positive value. As a school psychologist, I have often seen situations where rewards and punishments were confused and were dependent on who was giving and who was receiving. A good example of this is the child who continually acts out in the classroom, disrupting the entire class. The teacher frequently reprimands and scolds him for his behavior throughout the day. Despite her "punishments" the child's behavior may increase in intensity or duration. What is happening? The fact that the teacher's attention is given, regardless of how negative *she* thinks it is, may be seen as a reward by the child, and thus serves to increase misbehavior rather than decrease it.

The range for choosing rewards is endless and quite dependent upon the child or adult and the circumstances. Rewards can usually be listed in a hierarchy from extrinsic, concrete rewards to intangibles such as praise to the intrinsic reward of the work or task in and of itself. It is wise to remember that an individual who has experienced considerable failure or who cannot delay gratification will probably respond more readily to concrete rewards. Very few individuals work consistently by receiving intrinsic rewards alone. What would you do if your salary were cut in half on the assumption that you would remain in your profession for the intrinsic value of it? In addition, few of us would continue working on a task which proved to be totally unrewarding or consistently unsuccessful. Yet many children spend hours in situations which are full of failure and punishment for them, and we do not accord them the alternatives for dealing with failure that we accord ourselves.

The second alternative for responding to a behavior is punishing the behavior immediately after it occurs *in hopes* that punishment will diminish the probability that the behavior will occur again. Unfortunately, this is not always true. The subject of punishment deserves careful consideration, especially from educators. We all use punishment in dealing with children, usually when our frustration and anger are at an optimum, with the result that any behavior change is temporary or does not occur at all! Why does this happen? Punishment is technically defined as a consequence, the *removal* of which, is rewarding. For example, a child is spanked because he soiled his pants. The intention behind spanking is usually to teach the child that if he can go to the bathroom appropriately he will avoid or escape being spanked. Several complications can interfere with the desired outcomes, however. First, punishment alone does not transmit an idea of what *should* be done, that is, what is appropriate or desired. This point is especially important in working with impaired children who often need to be *shown* the appropriate in some way. Second, punishment can take on a reward value as pointed out in the example of the attention-getting student. There are also some children who relish spankings because that may be one of the few ways they get physical contact. Third, punishment can assume other unexpected characteristics by becoming generalized to total situations. A child might generalize being punished in one situation to disliking school or any learning situation. Punishment may help a child to remember a behavior which we adults want him to forget! Last, and probably most important, when punishment is used in an uncontrolled manner, it may be teaching children inappropriate behavior in an attempt to avoid being punished. Remember that punishment is technically defined as something, the removal of which, increases a behavior. If an individual is able to avoid being punished by lying or cheating, probabilities are increased that he will continue to do just that to avoid punishment in the future. It is the author's contention that a great deal of antisocial behavior is learned in just this manner. A final note on the disadvantages of punishment. There is some evidence that punishing behavior has little or no effect on future behavior, especially with retarded children (Cromwell, J. Mental Deficiency, 1959). The reasoning behind this is that retardates endure an extreme amount of failure (= punishment) and perhaps reach a saturation point. It is wondered how many other impaired persons experience this same thing.

It should be mentioned here that punishment does have a place in a behavior modification program, but only under carefully controlled conditions when inappropriate behavior is being supplanted with more appropriate behaviors.

If punishers do not always effect a decrease or removal of certain behaviors, then what does? The third alternative for responding to a behavior is to ignore it which in effect is *not reinforcing* it. A behavior which is *consistently not reinforced* will tend to decrease in frequency. In education (at any level) the task of ignoring behavior is undoubtedly one of the most difficult responses for a teacher to accomplish. The point between tolerance for ignoring undesirable behavior and the need for punishment is a fine one.

Often behavior which should be rewarded is unintentionally extinguished because the appropriate behavior gets ignored or not reinforced too frequently. If a teacher consistently ignores a child who gives a correct response, the likelihood of his responding correctly diminishes. *If* the teacher occasionally rewards the response, the child's behavior will continue at a high level.

This leads to several other principles governing behavior. When a new behavior is being established, reinforcement must occur immediately after each time the behavior occurs. After the behavior has become well established, however, occasional rewards will maintain the behavior. Various types of reward schedules have been investigated and will be discussed during the group discussion.

The immediacy of a reward also has impact on how effective it will be in establishing a behavior. Immediacy of a reward also hinges on how long an individual can wait for a reward. The important factor in giving a reward immediately is that the longer the time between a behavior and a reward the more likely it is that some other behavior is getting reinforced. An instance of this was observed by the author during the viewing of a videotape of a teacher working with trainable child. The little girl was attempting to make a vertical mark with a pencil. Her teacher was reinforcing this behavior by placing an M & M in her mouth for the correct response. However, it became apparent that the teacher did not give her the candy until after her mark was finished and she was looking around in a distracted way. The teacher was unaware that she was actually rewarding the child's "looking around" behavior rather than the marking. A side note is that videotapes or movies are very effective means for observing what is really going on, instead of how it "feels" or what we "think."

Here is another situation in which some of the principles outlined above are illustrated. No explanation is offered. Mary is an eight-year-old blind child who persists in temper tantrums at home, but not at school. She stomps her feet, flails her arms uncontrollably, and rolls on the floor. This behavior often occurs without any identifiable reason. Observations made during one of the tantrums noted that Mary's mother responded to her by putting her arms about her in a soothing manner in an attempt to calm her. It was further noted that the tantrums seemed to occur more frequently around suppertime when Mary's mother was feeling particularly harried. Over a three-month period the tantrums increased in duration and frequency. What was happening in terms of the principles of reinforcement and punishment? What kind of program could be set up to decrease this behavior?

It is hoped that during the conference session on behavior modification we can focus our attention on setting up programs which will solve problems like the one mentioned above.

Deaf-blind pupil learning on his own.

REPORT FROM THE NATIONAL CENTER FOR DEAF-BLIND YOUTHS AND ADULTS

By PETER J. SALMON, LL.D.

Director, Administrative Vice President
Industrial Home For the Blind
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I feel privileged to have the opportunity to participate in this outstanding International Conference on Education of Deaf-Blind Children. Time was when the programs for deaf-blind children and adults were carried on separately, but today we see the necessity and advantage of speaking not only of programs for deaf-blind children, but those for deaf-blind adults, because children have a way of growing up; and for the first time in the United States there is provision in the programs for children and adults to have a continuity, which is made manifest by the inclusion in the National Center program of the word "youths" as well as "adults." This means that unless we fail to carry out the obvious opportunity made available to us by law, there will be a carry-over from the training and education program of deaf-blind children to the youths and adults; and this provision cannot be overstated or underestimated.

My purpose is to carry out the request to speak to you about the program of the National Center for Deaf-Blind Youths and Adults, and I will do so promptly. However, I would like to remind you and to acknowledge the fact that work for the blind, as well as that for the deaf-blind, had its beginnings over the world by the educators, later to be followed up by what today we term rehabilitation, which encompasses evaluation, training, placement in work opportunities or other occupations for adults. Programs for the adult deaf-blind, historically, have taken much longer to develop than programs for the blind. In fact, it is only within very recent years that services on a limited basis have been provided for deaf-blind adults. I do want, however, to emphasize the fact that we owe a very great debt of appreciation to the educators who have struggled over the years, under very trying conditions, to provide services of training and education for deaf-blind children. Also, at this point, I might say that we have been encouraged in the recent survey which we made on behalf of the World Council for the Welfare of the Blind, Committee on Services to the Deaf-Blind, with the stirring of interest and increasing number of programs and services for both deaf-blind children and adults. The movement seems to have gained enough momentum so that we can look forward hopefully to a slow but gradual development and increase in these services and programs. This International Conference is a good step in this direction. Perkins School for the Blind, Dr. Edward J. Waterhouse, and all those who have been responsible for convening this Conference are to be highly commended. We desperately need consultation and strengthening in this pioneering field of work for deaf-blind individuals.

The National Center for Deaf-Blind Youths and Adults is the outgrowth here in the United States of two significant projects. The Anne Sullivan Centennial Commemoration, sponsored by Perkins School for the Blind and The Industrial Home for the Blind in 1966, was an educational endeavor which was highly successful and elicited considerable interest, not only in the United States, but throughout the world. It culminated in a never-to-be-forgotten memorial service at the Washington National Cathedral in Washington, D.C. (where Anne Sullivan Macy's remains were interred and a provision made for those of Helen Keller, who died in 1968). The second project was the Anne Sullivan Macy Regional Service, a Federally funded program conducted by The Industrial Home for the Blind. This project dealt with about fifteen States along the eastern seaboard of the United States and was continued for seven years, until June 1969, when the National Center was inaugurated. The interest that was developed by these two projects and the awareness of the problems of deaf-blind persons had a profound effect on the enactment of the legislation creating the National Center on October 3, 1967, when President Lyndon B. Johnson signed this legislation into law.

The Industrial Home for the Blind was selected by the Social and Rehabilitation Service of the Department of Health, Education, and Welfare, to operate the National Center on behalf of the government. In the meantime, a separate Act was passed in 1968, creating the program of training and education for deaf-blind children, conducted under the auspices of the U.S. Office of Education, Bureau of Education for the Handicapped.

While the children's program is concerned with the training and education of deaf-blind children, the National Center program is one of rehabilitation, research, and professional training. A close cooperation between these two programs is clearly indicated and being developed. Incidentally, those interested in obtaining information relative to these two programs should communicate with:

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Centers and Services for Deaf-Blind Children
Bureau of Education for the Handicapped
U.S. Office of Education
7th & D Streets, S.W.—Rm. 2036
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or

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The National Center began operating on June 24, 1969, under a permanent agreement with the Social and Rehabilitation Service. It is now in its third year and is operating from temporary headquarters at the above address. As this paper is being written, a grant of $2.5 million has been made toward the construction of the permanent Center, and an architect is just about to be selected. Preliminary plans have already been developed, which were made possible by a retired architect who is a Trustee of The Industrial Home for the Blind. A grant of 25 acres of land has been made to the IHB for the construction of the National Center by the Office of Surplus Property Utilization of the Social and Rehabilitation Service. This is a very fortunate circumstance, as it provides for an excellent location for the Center. It is a part of an area that is being developed as a park which comprises, in addition to the 25 acres for the National Center, about 200 acres of property. One of the chief purposes in mentioning the sponsoring of the National Center by the government and the acquisition of the land is to indicate to our friends from abroad that this might prove one means of getting a program for deaf-blind youths and adults under way, by enlisting the aid of the central government.

When the permanent Center is built it will consist of several buildings, the chief of which will be a building for the rehabilitation of deaf-blind persons, comprising various services that will be necessary toward this end. A separate building will house the trainees who will come from various sections of the United States and may stay anywhere from three to eighteen months. Some provision will be made for on-premises staff, and to this end some small apartment buildings will be erected. An obstacle course for mobility training and testing electronic devices, and a truck farm for training in agricultural skills will be provided. The capacity of the Center will be for fifty trainees, plus at least an equal number of supporting personnel. In addition, there will be eventually at least one-half dozen regional offices set up in various areas of the United States, two of which offices have already been opened over the past several years. They will provide for a closer contact with individuals and agencies interested in deaf-blind persons. They will make the initial contacts for those who will come to the permanent Center for training. In addition, agencies within the regions will be encouraged to develop services for deaf-blind persons with the advice and support of the regional staff, and also the members of the national staff, who will be available to go into the regions to provide expert assistance in problems relating to deaf-blind persons. In this way, additional numbers of deaf-blind individuals will be served, some of whom may not need to come to the National Center.

The steps leading up to the point in time where we find ourselves with the National Center were slow, oftentimes discouraging, with a lack of understanding and willingness to participate by those in our own field of work for the blind, as well as by the general public. However, we had the encouragement and faith of the late Helen Keller who, as you know, devoted her life to the deaf-blind, and Dr. Mary E. Switzer, former Administrator of the Social and Rehabilitation Service, and her staff.

The following quotation from a speech made by Helen Keller on June 27, 1945, on her 65th birthday, at The Industrial Home for the Blind, is both prophetic and challenging to all of us to rededicate ourselves to the cause of deaf-blind persons everywhere. We have quoted it a number of times, but we feel that it is apropos here.

> "Ever since I realized as a young girl that there were people without sight or hearing unbefriended, untaught, I have passionately prayed for and sought a solution of their problem. The consciousness of the heartbreaking lot of this, the loneliest, most isolated and defenseless group among the blind has always been a bitter drop in the cup of my own blessings. They have been for the most part neglected, not because doers of good are re-

luctant to aid them, but because those doubly handicapped are widely scattered over a great continent and often hard to reach. Consequently there has been no organized effort to educate and train them for usefulness among their normal fellowmen.

"That such an enterprise can be undertaken is splendidly proved at this gathering today in the Brooklyn Industrial Home for the Blind. Here actually you behold thirteen deaf-blind men who were fitted for many different kinds of work, and they have all proved their capabilities, strength and human dignity. They are independent, earning their own way and sharing in the support of their families and service to the community. What greater boon is there than this objective of happiness into which they can throw their once thwarted manhood and immortal spirits?

"The program for the deaf-blind so ably conducted by the Home is practical as well as humane, and should be enlarged so as to employ a larger number of persons who neither see nor hear. It is also urgent that similar programs be established in cities throughout the United States. For this double purpose a national service dedicated to the deaf-blind is essential, and I pledge myself to do what I can for its accomplishment."

DEAF-BLIND CHILDREN IN THE EMERGENT COUNTRIES

By G. E. Salisbury

Ministry of Education
Republic of Zambia

There are some hard inescapable facts which this conference must face when discussing the deaf-blind children of the younger nations. Firstly, there is very little reliable statistical material at hand. Secondly, new nations are faced with a deluge of medical, social, and educational priorities. Thirdly, plans for handicapped children which may work well in Europe or America may not necessarily be the answer in countries where background, language, and traditions must be considered and respected. Finally, there is a deep fund of good will towards practical, well-thought-out schemes even though their worth lies in the future rather than the immediate present. It is in this context that work with the deaf-blind child must be considered.

One of the fallacies which emerge from time to time in discussions on work amongst handicapped children in the developing nations is that little or nothing is being done in the special education field. It is particularly relevant in our deliberations on work amongst the deaf-blind in these countries to remove misconceptions and misunderstandings from the outset. Unless one is aware of what has been done, is being done, and what a country hopes to achieve, it would be quite unrealistic and impracticable to discuss ways of helping deaf-blind children and to disregard the local patterns of special education.

We are all aware of the high incidence of crippling and blinding diseases in many areas of Asia and Africa. We should be aware, as well, of the enormous economic strains, technical, medical and educational pressures to which new nations are being subjected, yet few people realize that many of these countries have found room in tight budgets to provide a sound framework of a special education system. Zambia is perhaps typical of the spirit of good will emanating towards the handicapped child. "Under fives" clinics in remote areas are already making drastic inroads into the appallingly high rates of disablement amongst children. Smallpox has virtually ceased, measles is being fought by vaccines, the same with poliomyelitis, and nutritional campaigns are being waged with increasing vigour. But the fact remains that an estimated 8% of children of school age will be restricted by some form of physical, auditory, visual or mental defect as is the case in America and Europe. Many of you who are unfamiliar with the African or Asian scene will be surprised to know that there are some first-rate special schools of international standing situated in some cases deep in the bush. There are teacher training schemes for teachers of the handicapped, a teacher aids centre in one country especially for the handicapped and, in fact, a host of new developments bourne on a wave of enthusiasm to make up for lost time. The traffic in ideas is now no longer one way as recent international conferences have shown; nevertheless, the fact remains that many new nations are faced with grave problems. They include lack of trained staff, of funds, of equipment—in some cases tens of thousands of handicapped children and in some areas apathy and indifference. As in Europe there are families who accept the handicapped child and others who reject it. It is then against this background of contrasts, good will and misunderstandings, plenty and poverty, governments with pressing priorities who can still find increasing time to legislate for the handicapped child, that the deaf-blind child must be considered.

Amidst the massive surge forward that has been witnessed in the world of the handicapped child, it is inevitable that handicaps less well known—those more difficult to deal with, and those which sometimes need a one-to-one teacher-child relationship should be overlooked. How can one help a spina bifida child, a muscular dystrophy case and others which need highly skilled nursing? In this perspective, the task we are discussing today, that of the deaf-blind child in remote areas of the southern hemisphere, may not appear so enormous. Make no mistake, Africa, Asia, and South America have their share of tragic cases, not least that of the deaf-blind child. One cannot quote numbers, no one can, but that they exist is certain. If I may quote our own experience in Zambia where we are still wrestling with the enormous problems of registration, accurate diagnosis, parent and community cooperation (which is becoming increasingly effective)—in a spacious sun-soaked land where distances are very great and population scattered except along the line of rail, reports sometimes come in to our Ministry of Education Headquarters of deaf-blind children. We follow these cases up. Sometimes it is mistaken identification of handicap—on other occasions parents have moved on but these cases have been positively identified and clearly there are more. Have you thought of these parents in a remote village who find themselves with an infant both deaf and blind with no advice and no help? These are problems we must do more than theorise about in the security and remoteness of a conference hall. Within the next five years we shall almost certainly witness a dramatic decline in the amount of diseases which keep those of us who work with handicapped children endlessly busy but, make no mistake, the battle is not over. Some areas in Central and Western Africa have exceedingly bad patches in multiple handicaps in addition to blinding diseases present. One blind child in every village in a certain area of West Africa was a fact in the early '60's; also three hundred physically handicapped young children in one valley in Central Africa plus a whole list of multiple handicaps. Nevertheless, the time is coming when we can look forward to the percentages of child handicaps being reduced to proportions which are more manageable. For example, we can look forward to the time when of the school child population the figure for the deaf and hard of hearing will be in the region of 1.5%, the blind and partially sighted .2%, the physically handicapped and chronic sick 3.5% and so on. A breakdown of the relative proportions of child handicaps in Zambia based on recent statistical information shows the following:—

Blind	7. 7%
Deaf	13.13%
Physically Handicapped	34. 2%
Chronic Sick	
T. B.	
Leprosy	
Retarded, etc.	44. 3%

We must be realistic—with the best will in the world the scourge of deaf-blindness in developing nations cannot be relieved in measurable terms for many years, but a start should be made. How is this to be done? Who is to do it? Where do we begin? What about funds? and How many deaf-blind children are there? Will they be interested or will they write it off as yet another scheme that may be fine in the sophisticated surroundings of some Western capitals but quite useless in the utilitarian setting of a new nation? These are a few of the questions which have to be answered.

The whole subject of deaf-blind children in Africa, Asia and the Caribbean was initially raised by Mr. John Wilson, Director of the Royal Commonwealth Society for the Blind, with Dr. Waterhouse at a meeting in New York. As you know, Mr. Wilson is a world authority on blindness particularly in tropical areas and so it was a happy combination that with Dr. Waterhouse who is equally well known internationally and has done so much to promote and pioneer work amongst the deaf-blind, that their fertile minds should get to work on what some people may feel are insoluble problems.

Two tangible results of the meeting were firstly:

(a) The need for international action in this field was recognized, and

(b) The possibility should be investigated of carrying out a survey establishing a demonstration scheme for the deaf-blind with international backing, in one of its developing countries, or just possibly in two regions at the same time.

Mr. Wilson had hoped to be in Boston to present his thoughts on the feasibility of the deaf-blind project but unfortunately he has had a long-standing engagement in Israel at the Ophthalmic conference.

The question nobody has yet answered is whether there would be enough deaf-blind children in a convenient geographical area of Africa to justify the establishment of a scheme big enough to be viable and to have the necessary technical staff.

We have very little reliable information about the extent of deaf-blindness amongst children in Africa. It has long been suspected that there are many deaf-blind children who never came to the attention of the authorities and who for one reason or another may not survive. One would expect them to be found where some cause of deafness such as cerebral spinal meningitis is prevalent and causes of blindness such as extensive trachoma, onchocerciasis or vitamin malnutrition exist. There is reason to believe that some areas have a virulent form of measles which has left in its train for those children who survive—deafness, blindness, and sometimes a combination of both. Little has been heard about rubella cases, their incidence or degree of severity, but there is no reason to believe that this disease should play a less prominent part in deaf-blindness than in countries where medical research is well advanced. On the contrary, one may feel with some justification that matters might be worse or at least severely aggravated. If this reasoning is correct, a combination of blinding diseases and those with auditory effects, plus the assumption that rubella is present in an incidence bearing some relationship to that experienced in Europe and America, one could assume that there might be considerable "pockets" of deaf-blind children in certain areas of Northern Nigeria, a section of the Volta, river region in Ghana, the central area of Tanzania, the lower Shire Valley in Malawi and the Luapula Valley in Zambia. It must be stressed that this reasoning could be wrong but on the known facts which are few and far between this might prove a sensible starting point for investigations.

Another question which must be eventually answered is what sort of school would be possible. There is much to be said for its being attached to an existing institution where a high standard of service and facilities for some research and teacher training are possible. To what extent would a Government be prepared to accept a scheme of this type? What contribution could existing teacher training colleges and universities make? A number of countries present the type of conditions which have been suggested and, as far as work with handicapped children is concerned, have already established a reputation for genuine humanitarian interest in this section of education.

At this stage it is as well to warn the conference that however much good will exists towards handicapped children, most Governments in Asia and Africa will find such high capital and recurrent costs unacceptable. In relation to the small returns they would quite rightly consider them unjustifiable. This is where voluntary agencies can step in and carry out pioneer research work on which, one day, a country can invest using its own resources. Somebody has to set a lead and carry out the exploratory work. Quite clearly if the conference takes note of the need to help the deaf-blind child in new countries, as surely it must, it is the logical body with its professional expertise to mount a combined operation representing the interests of Governments, both medical and educational authorities and international voluntary organisations. This is the first step—a step which will include defining objectives and beginning the arduous task of gathering statistical material—an assignment which could take many years. In the meantime, I suggest that rather than remaining passively inactive, this conference should consider, with appropriate approval from the countries which may be involved, recommending an appropriate "pilot" deaf-blind unit along the lines already discussed. It will be expensive—it will be difficult to launch but with co-operation it can be done. One day it will have to be done so why delay the issue when deaf-blind children need help now, not when they are dead.

The complexity of this undertaking must not be underestimated and initially the momentum will have to come from organisations with the skilled personnel available who are closely in touch with the needs of new countries. What are the practical problems? Children will be drawn from different backgrounds with different traditions, culture, religions and even languages. The point of "break through" would vary immensely and might not even be attained. In the enthusiasm of pioneering a new service of this type it is easy to forget the people who should be given every consideration and, if at all possible, consulted at every stage. I refer to the parents of deaf-blind children. Their difficulties do not need enumerating in this paper so long as they are not forgotten. Parents react in various ways to a child's handicap, from rejection to overprotection. A deaf-blind unit will encounter the same understandable reactions. Let us resolve that if a unit of this type gets the final go-ahead the ties between child and home will not be forgotten—that we think in terms of not another show piece divorced from the realities and problems of local life but founded on the strength of family and community responsibility.

This project has much to offer just as it demands much in ingenuity, financial support and faith. Today we could easily put aside recommendations for a project of this type and leave it to those who in years to come will take on our responsibilities—yet is this not the easy way out? Where would work with handicapped children be if our forefathers had decided that it would be more expedient to absolve themselves from responsibilities with handicapped children? In those early days when the handicapped child was often regarded as an insurmountable problem a case could be conveniently argued for passive inaction. With the growing surge forward in interest in handicapped children increasing in momentum every year, a growing independence on staffing and technical "know how" there is much to be said for bringing the plight of the deaf-blind children to the notice of Governments in developing countries. This conference can rest assured that if the case of the deaf-blind child is presented accurately, with understanding and consideration for the priorities a developing country is faced with, particularly in the educational field, a young country will not lightly turn aside genuine help that is likely to bring new hope to the deaf-blind child and its parents. It is for this reason alone that the conference is urged that pious resolutions about the deaf-blind child in Africa, Asia and other developing areas are not enough. It is time that the gates which have been locked for so long should be opened. What better function could this conference perform than to resolve to provide the golden key.

The capital cost of an experimental unit for deaf-blind children, even if it is high by African standards, should not be unobtainable as clearly such a unit would be regarded as an international demonstration. Much more important in the acceptability of the plan will be the recurrent cost.

In a continent where per capita income of $175 per year is high, where a recurrent expenditure of $160 per annum would be about the maximum accepted for the education of a primary school child, and where residential schools for the blind have been criticised if their annual per capita costs exceed $400, clearly any proposal to educate deaf-blind children at $3,000 per annum or more is going to be regarded as impractical. It might be sustained by overseas assistance for a while but would just not be taken seriously as a viable addition to a national educational programme.

An essential feature of the unit therefore must be its economy and I think it should be possible to achieve acceptable figures whilst at the same time retaining a one-to-one staff-pupil ratio so long as locally recruited staff is used and the unit is conceived as part of an efficient existing institution. An international expert may be required to set up the unit for, say the first two years and international training will certainly be required for the local staff but this could reasonably be regarded as part of the initial capital expenditure and an investment to make possible economic running in the future. If, as seems essential, the unit is from the outset regarded as an interterritorial enterprise, financial backing should be easier to obtain but the problem of language and of alienation from the deaf-blind child's home will have to be solved.

SEXUAL PROBLEMS OF DEAF-BLIND CHILDREN

By Carl J. Davis

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A discussion of "sexual problems" is of necessity a discussion of psycho-sexual development. In my use of the term, psycho-sexual development is the acquisition of that constellation of attitudes, habits and actions that an individual develops in relation to his perception of his own physical structure and his perception of the physical structure of members of the opposite sex. The acquisition is the learning of a combination of anatomical and physiological facts, and the learning of social attitudes, expectancies and customs. This process determines the sexual role of the individual. The term sexual, rather than sex, is used purposefully. Although the *Dictionary of the Social Sciences* defines sexuality as "The complex of drives, attitudes, habits and actions of an organism organized around coition," the writer uses sexual, or sexuality, in its broadest or Freudian concept: any interaction between two, or more, individuals of the same or opposite sex built around the pleasure principle. Thus, coition may be the ultimate goal, but this need not be the purpose for sexual interaction. In *this* sense interaction between two five-year-olds or a teacher and a five-year-old is sexual, but it has no connotation of involvement of adult genitality; whereas interaction between late adolescents or adults may, but need not, result in copulation. Sexuality during childhood and adolescence is preparation for adult genitality. Consequently I shall use the facile term sexuality rather than the cumbersome psycho-sexual development for the remainder of my discussion.

Historically the reluctance and/or fears of parents have prevented children and adolescents from obtaining honest, meaningful and realistic information about the anatomical and physiological aspects of sexuality. Consequently Mary and Johnny have had to obtain this information behind the barn, behind closed doors, and by surreptitious reading of "forbidden" books. Social attitudes and values were communicated in a negative or prohibitive fashion, or via back-room or shower-room conversations with peers, thus subject to inaccuracy, distortion and negative emotional loading.

The result has been generations of sexually limited, insecure or rigid individuals.

Today as a result of the increase in our knowledge of human development we are concerned about sexual development, and we are trying to implement the teaching of sexuality in our schools. The earlier, and in too many cases still existent, programs of "sex education" were concerned solely with the anatomical and physiological aspects of sexuality. If a social component is incorporated in "sex education," it is usually moralism or negativism. More recently we have developed a desire to incorporate the teaching of sexuality in our school programs, most frequently under the label of "Family Life" or "Family Living." These latter are not presented as a unit at twelve or thirteen years of age as is "sex education." Instead, they are designed for incorporation into the regular school program beginning in kindergarten and continuing through the whole school experience. By starting introduction of teaching sexuality at kindergarten I do not mean that one should introduce a unit on reproduction at this age level. Rather, the teacher should be prepared to comfortably answer within the *language level* and *comprehension level* of the child questions relative to anatomy and physiology both accurately and simply.

I recall a kindergarten teacher who was asked by a five-year-old, "Do you have a penis?" She felt overwhelmed by anxiety and tried to figure out how to cope with a question for which she was unprepared. Fortunately she could only say, "No." The child said, "O.K.", and ran back to the group playing with the train saying, "Nope. She doesn't." He then joined in the play. This teacher luckily answered a question properly that had been asked from a five-year-old frame of reference and had been listened to from an adult frame of reference. On another occasion a teacher insisted that all first graders should be provided with a complete description of copulation and reproduction. Such a person was seeking to satisfy her own personal needs; not those of the child. The key to input from a "Family Life" program is to meet spoken and unspoken inquiries from the child accurately and at his level of understanding and language, but it is not to try to stimulate him beyond his level of readiness.

In the "Family Life" program as the pupil progresses through the grades he continues to be provided with adequate sexual information commensurate with his need at a given time. This may be related to the normal curriculum as the opportunity becomes available, or the teacher may provide opportune stimuli in the anatomical, physiological or social areas as a basis for discussion when the situation indicates the desirability of doing so. Thus the children can be prepared for the onset of puberty contrasted with the *ex post facto* approach of "sex education."

It should be indicated that this type of program is not a panacea. Unless the teacher is sexually well adjusted he or she cannot avoid communicating negativistic attitudes and biases. Thus all teachers cannot be included in such a program. It is better to omit them than to inhibit the children. It is necessary to have the wholehearted support of the majority of the social community served by the school in order to have a successful program. Some communities in the United States have been torn asunder, because the populace has been divided over the meaning and utility (stemming from lack of true understanding) of such programs. The final critical item is that the school and teacher must be aware of the social milieu of the pupils, because there are wide variances in the sexual attitudes and expectancies from one social grouping to another. Sexual behavior is quite basic among the lowest classes and there tends to be a greater freedom of behavior as one moves up the social scale. Naturally this latter statement is subject to the weaknesses of all generalizations. There are differences between Denmark and Norway and there are differences between Boston and Peoria. Nonetheless, within a given community there does exist a variety of attitudes and expectancies. In addition we must recognize that in a residential setting the prevailing mores must, in most instances, incline toward the conservative social behavioral pattern.

The program I have been describing continues in the same vein through puberty and adolescence with the ultimate goal of producing the sexually mature individual. However, it is necessary to progress to a consideration of our specific subject group, the deaf-blind. It seems advisable to consider the obstacles placed in the path of acquiring a mature sexuality by the presence of visual and auditory handicaps. The most important aspect of sexual learning is the acquisition of realistic knowledge of one's physical self in terms of normality and adequacy. Visual handicap seriously impedes the accomplishment of this task. The seeing child has available visual stimuli, both human and graphic, while the visually-handicapped youngster who obtains realistic structural information via the tactile and kinesthetic modalities is prevented by social mores from obtaining this information about the human body.

Some may suggest the use of models, yet even the best of those are constructed for visual utilization rather than tactile. In addition they are unable to adequately illustrate the variation in structure of members of either sex and the varieties of esthetic quality that are available therein. Graphic stimuli, particularly photographic, are able to communicate qualities that are impossible via models. While the visually-handicapped child usually develops normally in the language area and is able to learn all the necessary terminology and descriptions of the anatomical and physiological processes involved in sexual development, such information remains an abstract verbalistic conglomerate unless he is able to support it by tactile kinesthetic perceptions. Thus he approaches adulthood with an imperfect understanding of himself and of the opposite sex.

The auditorily impaired youngster has the opposite problem. By the nature of his education he learns easily via visual stimuli, but the lack of language facility seriously inhibits his acquisition of the social aspect of sexual learning. While young the child can be adequately and realistically satisfied by adequate, simplistic responses. As he grows older he needs more elaborate realistic explanations for social behavior. This is difficult, if not impossible, to achieve with the auditorily impaired pre-pubertal or adolescent young person. Thus we are faced with a situation where we can convey anatomic and physiologic information, but we are severely restricted in the transmission of the information necessary for adequate development of the social aspects of human sexuality.

It is apparent that one is faced with very serious obstacles when attempting to develop human sexuality in children with combined auditory and visual handicaps. The presentation of anatomic and physiologic information via graphic materials and/or models may be utilized, but their limitations must be recognized. Unless information is communicated relating structure and function to social attitudes, expectancies and customs; and unless the child is able to express his level of understanding, his uncertainties and his anxieties; an inadequate, incomplete presentation has been made. As a consequence it is possible that, rather than alleviating uncertainty, guilt and anxiety, one may be supporting or accentuating those very problems one is attempting to relieve.

The basic axiom of "Family Life" teaching is accuracy in communication. A baby does not grow inside a female's stomach, growth takes place within the abdominal cavity (indicate the area on the inquirer's own abdomen). A nocturnal or awaking erection is not necessarily the result of sexual fantasy, it may be serving the very utilitarian function of preventing enuresis. Menstruation and nocturnal emission are hygienic functions, not unsanitary actions of the body. The list of possible errors and inaccuracies is infinite. The medium for greatest possible error is language because, whether oral, manual or sign, multiple meaning for vocabulary elements present a continuing hazard. This hazard becomes accentuated when the child has a limited vocabulary. The problem of low language level was very apparent when our counselors started counseling in this area with five deaf-blind pupils in the fourteen-to-fifteen-year age range. Their language levels were in the second to fourth grade range and their social ages fell between chronological age and language age. The counselors felt a constant concern about the meaning of language to the pupil in their desire to satisfy curiosity.

The writer has attempted to establish a frame of reference for teaching human sexuality to deaf-blind children. Human sexuality is an essential element of personality development and it plays a significant role in the determination of one's life style. The degree to which a given program wants to incorporate "Family Life Education" into its curriculum is a matter of local choice. It is not possible to present a syllabus, but it is possible to set forth some basic guidelines. They are as follows:

1. All communication *must* be accurate and adequate.
2. All information or responses to inquiries *must* be presented in language and content *commensurate* with the pupil's social age and language level.
3. The use of graphic materials *requires* adequate explanation and *complete* satisfaction of the pupil's curiosity.
4. Information relative to physical structure and function *must* be related to the attitudes, expectancies and customs of the pupil's social milieu.
5. Care must be taken that persons teaching "Family Life Education" are only those who have themselves developed a healthy life style.
6. No person should teach "Family Life Education" without adequate preparation.

RESOURCE REFERENCES

Sex Information and Education Council of the United States, 1855 Broadway, New York, New York 10023.

Science Research Associates, Chicago, Illinois.

THE EXPRESSION OF SEXUAL NEEDS OF THE DEAF/BLIND ADOLESCENT AS PERCEIVED BY CLASSROOM TEACHERS

By MARY L. DAVIS

Teacher of Deaf-Blind Children, Perkins

Introduction

In teaching deaf-blind adolescents, I have become aware of the difficulties they have in understanding and handling sexual feelings. This is probably due to lack of experience, inadequate language, and additional handicaps such as mental retardation, brain damage, and neurological or muscular dysfunction. The other teachers and I are confused about how to help our students with these difficulties. To compound the problem, some of us are nervous or embarrassed about discussing their sexual feelings with them or with each other. The purpose of this paper is to provide a basis for fruitful discussion about the sexual needs of our adolescent students, and how we can help them express these needs and cope with them.

This paper will be devoted to specific problems involving adolescents in our own department. I shall write about seven students who have varying degrees of sight, hearing, intelligence, and additional handicaps. The first two are my own students. Consequently more will be written about them.

I would like to thank the following teachers who took the time to talk with me about their students:

Cynthia Maher
Michael Zimmerman
Marilyn Gregory
Sherrie Hill

Student I

B. D. is congenitally blind and has a severe hearing loss with a sloping configuration. She is 18 years old and although she is rated as a six-year-old by the Stanford Binet Achievement Test, her language level is really that of a three- or four-year-old. Her reasoning is very concrete. Although her behavior has improved, she is often nervous and aggressive, pinching and biting both herself and her teacher. She is very upset by schedule changes and unexpected happenings. She has a small child's need for affection and approval.

She has always been easily upset and aggressive in the classroom, and has been taking Mellaril for the past year. I feel that knowing the reasons for unacceptable behavior is important and I have worked hard to identify when these reasons are related to heightened sexual feelings. On days when her sexual feelings are heightened, her body tone is different; she is confused by things she usually understands; she is noisier than usual; she makes unusual movements with her tongue; and one or two times she has tried to climb up on the locker where she hangs her coat. She also becomes easily upset and sometimes pinches and bites both herself and me. Sometimes B. D. wants affection badly. She says, "Give me a kiss, Miss Davis," or "Give me a big hug." She seems to want to cuddle with the teacher. The immediate problem is how to fend her off without making her think that I don't like her anymore. To think of a way to channel her behavior so that such behavior does not occur is more difficult.

Although B. D. shows no special interest toward the boys in the classroom, she does get very excited when she goes to a class taught by a male teacher. She often makes a great deal of noise on the way to this class, and sometimes pinches whoever is taking her to the class. When she returns from class, I sometimes have to take time to calm her down before she can resume her regular work.

In thinking about how to help her handle her feelings, I dismissed the idea of giving her a formal course in sex education. Such a course would only confuse her and would not help her control her behavior. I decided that I should talk to her about her feelings in a very simple way and that I should provide her with controls in such a way that she would not think that her feelings were bad, but that she would realize that certain behavior, like climbing on the lockers, is definitely not acceptable.

When I realize that her feelings are stronger than usual, we talk about them. I have found that it does not help to ask questions like, "What do you feel like?" She only gets upset because she does not know what she feels like. She has no words for this kind of feeling. So, I started asking, "Do you feel all mixed up inside?" This she understands, and it gives her some words to express how she feels.

It provides a basis for further talking. Further talk usually consists of my saying the following things about feeling mixed up. "It is all right to feel all mixed up inside. It is all right not to understand why you feel this way. Sometimes I get all mixed up, too. I don't always understand why. Lots of people get all mixed up." This usually makes her feel much better.

Just talking about her feelings is not enough to make her behavior acceptable. Although I have not been entirely successful in the areas of control, I have managed to improve her behavior by telling her very firmly that people do not stick out their tongues, climb on lockers, kiss their teachers all the time, pinch or bite themselves or their teachers, or make loud noises when other children are trying to work. I have also tried to provide an atmosphere in the classroom that will help her to be able to control herself more easily. If I am planning to do several exciting things with her, I don't tell her about them all at once. If she is tense or agitated, I postpone telling her anything that will aggravate the condition. Even if she does start to lose control, I have shown her that she can stop herself before she hurts other people.

B. D. has always had difficulty handling her feelings in an acceptable manner, and the sexual developments of adolescence only compounded this difficulty. She had to be taught that it is all right to be sad, mad, or to feel all mixed up inside. She had to be shown that she could control her actions or that she would be controlled by the teacher. She will be leaving school soon. It will be difficult to find a new situation for her in which people will have the time to help her with her behavior as we have been able to in this school.

Student II

D. S. is totally blind and profoundly deaf. She is thirteen years old and lost her sight and hearing when she was about five. She was placed in a foster home at the same age. Soon after that she was sent to Perkins School. She was a very confused and frustrated little girl when she arrived and was a behavior problem because of her many tantrums. After an unsuccessful attempt to teach her speech, she was taught to fingerspell. She has progressed well using fingerspelling and now functions academically as a seven-year-old. She communicates about daily events very well. She can talk about what she does at school and at the cottage. She can answer questions like, "What would you like to do next week?" or, "Were you feeling happy this morning?" However, if the communication is at a higher level, she gets confused. She often has difficulty answering questions like, "What's the matter?" or "Why did you take the book back to the cottage?"

D. S. is probably going to have problems adjusting to adolescence. She can express some of her feelings, but does not have the language ability to discuss the complex emotions of a teen-ager. Because of her identification with her teacher and her desire to do what is right in the eyes of an adult, it is difficult to explain such emotions to her. If I talk about feeling a certain way, she will say that she feels that way too, whether she does or not. How can I teach her to express her feelings at a higher level without making her think exactly as I do?

She is very affectionate toward men and boys. How can I teach her when, where, and to whom she may show this affection? One day she and T. V., a teenage boy in the classroom, went into the teachers' room, closed the door, and began to kiss each other. I stood outside wondering what to do. This was very normal behavior for two teenagers. They were not going any farther than kissing and they were doing it in private. I did go in and tell them to stop, saying that school was not the appropriate place for kissing. However, I thought about it later. Totally deaf-blind adolescents have few opportunities to act as normal adolescents in the area of sexual relationships. D. S.'s adjustment is made even more difficult by her confused background and the lack of communication in her foster home. She had a very deprived childhood before she lost her sight and hearing. Her foster mother does not fingerspell, so D. S. can't talk to her about any problems that she might have.

I've had a lot of trouble trying to decide how to best help D. S. to learn how to express her own feelings, to learn how to behave in a socially acceptable way, and to learn about sexual relationship. I really don't know what to do.

Student III

B. A. is legally blind and has a profound hearing loss. She is fifteen years old. According to an Ontario School Ability Examination taken in 1967, she has an I. Q. of 55. However her social age is lower than B. D.'s. Her teacher did not feel that B. A. showed any concern with sex until she read a letter that B. A. had written to send home some time last year. The letter said the following:

B ride in car with Mr. ______________.
B silly in bed with Mr. ______________.

Knowing Mr. ______________, the teacher was sure that B. A. had not been silly in bed with him. Perhaps at one time, B. A. did see a man and a woman in bed together. Maybe she saw it on the television. She may have just been wondering what men and women do in bed together. Maybe she was thinking, that she was growing up and grown women sleep with men. It is impossible to really know what she was thinking, but it is possible to presume that she would express what she was thinking in a very concrete manner. Since Mr. ______________ was a man whose name she knew, she simply used his name. The teacher is now concerned about what else B. A. might write and say. If she expressed herself to someone who did not know that her levels of intelligence and language cause her to express herself the way she does, she could cause a lot of trouble.

Student IV

A. T. has poor partial vision and has a profound bilateral hearing loss. He is sixteen years old and functions as a ten-year-old academically. He recently came to Perkins from a school for the deaf. His teacher had provided him with a course in sex education. The teacher was very thorough in teaching him about the physical aspects of sexual intercourse and the birth process, but he had a great deal of difficulty explaining the emotional aspects. A. T. seemed to think that the lessons were just another academic exercise. The day after one discussion he wrote in his news, "My mother has a uterus," just as he might have written, "I played baseball yesterday."

The teacher says A. T. never verbalizes feelings other than happiness. When an attempt to explain feelings to him is made, he just doesn't seem to understand. The teacher wonders what can be done to help him understand the important part that the emotions play in the area of sex and in everything else he does.

Student V

H. S. is legally blind and has a very severe bilateral hearing loss which is getting progressively worse. She has Frederick's Ataxia and is confined to a wheelchair. She is eighteen years old and functions as an eight-year-old academically. Since there is no possibility for her to have a normal sex life, her teacher wonders if sex education is necessary. H. S. does fantasize about boys. For example, she says she is going to marry a boy she knows at home and go to England with him. Considering her condition, the teacher asks how far such fantasies should be allowed to go.

Student VI

J. W. has poor partial vision and a profound bilateral hearing loss. He is fourteen years old and functions academically as a nine-year-old, but emotionally and socially he appears to be well integrated as an adolescent. He seems to be having the problems which many normal adolescents have, problems which are compounded by his deafness. Perhaps because he has a language deficit due to deafness, he is having trouble understanding some of the physiological and emotional aspects of sex. Like some other adolescent boys, he is very shy when he is at a social gathering with girls whom he does not know. He is sensitive to social situations, but his deafness and lack of language make him feel especially awkward. Some people who have talked to him feel that he is concerned about his handicaps and how they will affect his adult life.

Student VII

M. E. has fairly good partial vision and a profound bilateral hearing loss. She is seventeen and functions as an eleven-year-old academically. M. E.'s mother has handled her sex education, and the teacher feels that the physiological and moral aspects of sex have been well explained. However, the teacher feels that because she has been away from her family, M. E. does not have a well-developed sense of love and affection. She does not react according to her feelings, but according to the way she thinks she ought to react. When she sees her family, she acts very loving and affectionate, but the teacher thinks that real feeling is missing.

Although she is very excited about the idea of having a boyfriend, she does not have the opportunity to form a good relationship with a boy. Sometimes at social events she meets boys from outside the school whom she likes very much, but she is shy. Usually the boys only come to the school one or two times, so she does not get a chance to know them well.

Conclusion

In summary, we have seven students with problems related to adolescence. Student I is very slow and has problems with control. Student II is not as slow, but has difficulty understanding and expressing her feelings. She also is not sure how she should behave with members of the opposite sex. Student III is very slow and could cause problems for herself and other people by what she writes or says. Student IV cannot seem to understand that sex has an emotional aspect. Student V has many additional handicaps and her teacher questions her needs for sex education. She fantasizes about boys and the teacher wonders how far the fantasies should go. Student VI seems like a rather normal teen-ager who needs help with adolescent problems, and with the additional problems which deafness brings to him. Student VII seems to lack a well-developed sense of love and affection. Like Student VI, she has problems relating to members of the opposite sex.

Writing and thinking about these students brought several questions to my mind and I would like to use them in concluding this paper.

1. How do we identify the sexual needs of our students?
2. What do we define as sexually related problems?
3. What can we teach small children about feelings that will help them cope with their emotions when they reach adolescence?
4. How can we help the slower children to cope with their feelings and behave appropriately when they reach adolescence?
5. What kind of sex education program can best help the brighter students to understand the physical, emotional, and social aspects of sex?
6. How do we find guidelines for such a program?
7. How do we help those with poor home situations?
8. How do we help those with additional handicaps?
9. Who has the responsibility for providing sex education?
10. How can teachers be helped to cope with their students' sexual needs and their feelings about these needs?
11. Can we provide opportunity for normal adolescent sexual experiences for the more capable children?
12. What is the effect of the close physical teaching situation?
13. How does a language deficit due to deafness modify counseling?

THE CONFERENCE IN RETROSPECT

(Including Considerations for Future Conferences)

By KEITH WATKINS
Australia

Introduction

You will notice in the program that I am to give a "brief" summary. I could be extremely brief and simply say: "an outstanding success, and congratulations to Dr. Waterhouse, the program committee, participants and other people associated with planning and producing a most informative, interesting and enjoyable set of experiences."

However, if I left it at that, the Chairman would no doubt say: "Now the audience may wish to know why you feel this way." In fact, knowing Chairman Myers so well, I feel the word "WHY" has already flashed across his cerebral cortex. So, I shall tell you why I am of this opinion. At the same time, I would like to know what you people think, as I shall endeavour to convey some ideas for future occasions.

In other words, we would like to have a short discussion, or "dialogue" I think is the current term. So, my words of wisdom and then yours.

1. *Involvement*

I think that the key to a successful Conference is involvement. As I said at the first session, what we get out of a conference like this will depend on various factors, but to a large extent it will depend on the input and amount of active participation.

Conferences such as this provide an opportunity for educational administrators, class teachers and educators in general to take account over a short period, world-wide developments in a particular field—in this case the education of deaf/blind children. At the same time an opportunity is provided for the display and illustration of techniques and technology applied in various programs throughout the world. The degree to which an individual benefits from such proceedings will depend on the individual's attitudes and degree of involvement.

2. *Aims of the Program Committee*

It seems to me that the program committee in its design for the Conference had a number of broad goals in view:

(a) to involve as many people as possible from those associated with the education of the Deaf/Blind, and from as many countries as possible
(b) to cover as wide a range of areas as possible
(c) to cater for the educational administrator and the practising teacher
(d) to promote involvement through active participation in the form of presentation and discussion.

Attainment of such goals is not an easy task, but I feel that under the expert leadership of Dr. Waterhouse the Conference has achieved great success in fulfilling its aims.

For example, it was truly International:

(a) *Countries Participating:* Republic of South Africa, Tunisia, Hong Kong, Japan, Vietnam, Australia, The Netherlands, Sweden, Switzerland, United Kingdom, France, Germany, West Indies, Canada, United States
(b) *Number of People Registered:* 197
(c) *Broad Areas Covered:*
    Programs for Deaf/Blind
    Teaching a Mother Tongue
    Learning Disabilities
    Diagnosis and Evaluation
    European Programs
    Social Problems
    Parent Counselling
    Rubella
    Assessment of Residual Vision
    Training of Personnel
    After Care
    Psychological Aspects
    National Centre
    Emergent Countries
    Sexual Problems

These areas have a clear relevance to the task of the educational administrator as well as the practising teacher. Moreover, the content of the papers presented gave many ideas and much food for thought to be applied in the design and further development of educational programs for children with both visual and auditory impairments. Then again, the procedure of distributing papers before the Conference in order that a Seminar approach rather than Lecture approach could be adopted, gave the desired opportunities for a broad exchange and clarification of ideas to be used in problem solving.

3. *Some of the Conclusions Reached*

What are some of the implications and considerations raised during the week and requiring projection from the Conference? (random order).

(a) an expansion of services and development of additional educational programs throughout the world—including the emergent or developing countries
(b) adoption of a regional, comprehensive approach
(c) a more concerted effort to promote research, particularly in respect of diagnosis and evaluation
(d) development of basic training programs for personnel
(e) a broad exchange of ideas in respect of techniques and technology
(f) promotion of a team approach, i.e. educators, medical staff, psychologists, parents, etc. working together as a team (possibly with the educator at the centre)
(g) a broadening of the scope and concept of Parent Counselling

These are a few. You can list many more.

Some additional thoughts

(a) Possibly, a little too much was attempted in the time available. Some difficulties were experienced in endeavouring to absorb so much information, particularly as there was considerable abstract material.
(b) The problem of quantity would have been less evident if all papers had been to hand for distribution before the Conference. Maybe the solution for the future is to require an abstract for distribution before the Conference and require papers to be on hand for distribution during the proceedings. (N.B. The Perkins team has been magnificent in preparing material for distribution at short notice.)

4. *The Dissemination of Ideas*

Now, I think we should all endeavour to disseminate the information and ideas presented during the past few days. This can and will be done in various ways, particularly through Staff meetings and Seminars at the local level. Of course, our task has been made much easier by the printing of papers, prior to presentation;

another special feature of this Conference and in many ways a contributing factor in its great success.

5. *Future International Conference on the Education of Deaf/Blind Children*

It is difficult to be too precise at this stage in advocating action to be taken for the next Conference. However, here are a few random thoughts:

(a) *Theme*

Maybe it would be a good idea to explore the wisdom of having a specific rather than general theme next time. It may well be that such action was discussed for this occasion, I don't know. Certainly, the general theme used this time has served to indicate the diversity of problems and challenges faced by educators of deaf/blind children.

However, it would seem that we have reached the stage where certain problems or challenges in this field are more pressing than others. And it would seem that an International Conference should give a lead in the setting of broad educational goals, patterns and approaches for deaf/blind children (i.e. give definite direction to the world-wide movement). Possibly, the placing of emphasis on a special problem area would help in this process. A particular theme could be based on the conclusions reached at this Conference. For example it might be derived from such areas as:

(I) the need for an additional, pressing service (e.g. comprehensive diagnosis and evaluation)
(II) the need for additional educational programs
(III) the need for research
(IV) the need for more planning in the area of after-care
(V) the need for a regional, comprehensive approach
(VI) the need for an expansion and development of basic training for personnel
(VII) the need for expansion of parent counselling

(b) *Regional Seminars and Workshops*

Of course, it might be argued that this emphasis on a particular problem area should be given at the regional seminars or workshops. There would certainly seem to be good reasons for this. At the same time, I feel that an International Seminar should also give a lead and this might well be done through a precise rather than general theme approach.

The practice of holding regional seminars should of course be promoted through this Conference and I feel sure that we would all endorse an expansion of these.

(c) *Plenary Sessions and Group Discussion*

One suggestion that follows on from the particular theme approach is that of the Plenary Session followed by group discussion. That is, say two or three papers on a pressing problem or area of particular interest, followed by discussion of the papers and the problem in small groups. A reporter from each group could give the conclusions to the full seminar.

This would most likely make for an "in depth" look at a particular area and promote more personal involvement.

(d) *Techniques and Technology*

The best way to learn what techniques and technology are being used in an educational program is to go and look at the program. It is very difficult to arrange demonstrations of techniques and equipment used throughout the world.

However, at Conferences such as this, it may be possible to make greater use of the advanced technology of our age by producing more movie film, coloured slides, photographs and closed circuit television film to illustrate the work being done.

Conclusion

In conclusion I repeat: "an outstanding success, and congratulations to Dr. Waterhouse, the program committee, participants and other people associated with planning and producing a most informative, interesting and enjoyable set of experiences."

I wish to express my grateful thanks in having been given the opportunity to participate in such a meeting at such a delightful venue.

Discussion

The following comments and suggestions were presented during the discussion:

1. Mrs. Johnnie B. Daniel—Louisiana. The next conference should provide for even more participation by parents of deaf/blind children.

2. Miss Joan Shields—England. It might be advisable to leave the printing of the final program until fairly late. If the abstract is not received in time then the speaker should be changed and the program altered accordingly.

3. Mr. S. O. Myers—England. Maybe it would help if a small booklet containing background material on subjects were to be printed.

Dr. Edward J. Waterhouse—Perkins. This aspect was considered but time and personnel for this task was a great problem.

4. Miss Harriet Furton—Ohio. There should be more time devoted to research and scientific studies but particularly from the point of view of application of such studies to the teaching program.

5. Mr. Lars Guldager—Perkins. There should be more papers based on research directly concerned with deaf/blind children rather than related fields (i.e. encourage research into the deaf/blind child).

REPORT OF NOMINATIONS COMMITTEE

Friday, August 27, 1971
11:00 a.m.-12:00 p.m.

Nominations Committee

K. W. Watkins, Chairman—Australia
B. F. Smith—U.S.A.
J. E. Shields—England
S. E. Armstrong—Canada
T. Pauw—South Africa

Reasons for Remaining Autonomous

The following points were discussed at considerable length during the week:

1. One of the basic aims of the International Deaf-Blind Committee is to sponsor and organize a successful International Conference on the Education of the Deaf-Blind in 1974. Another is the sponsoring of projects to promote the education of the deaf-blind.
2. In order to do this, a committee must have a strong leader and be strong in all its component parts. At the same time, the members of the committee must be vitally interested not only in the welfare of the deaf-blind but more particularly in the education of the deaf-blind.
3. In discussing the pros and cons of affiliating directly with W.C.W.B. through a joint committee, it became abundantly clear that to insure that the above objectives will be reached, the committee should be selected by this Conference and not left as a "short" list from which the W.C.W.B. would select educationists for its joint committee.
4. An invitation has been received from the R.N.I.B., England, for the next conference to be staged at Condover Hall. (It is recommended that this invitation be accepted.) An invitation was also forthcoming from the Australian contingent. However, it was felt that Australia would need more time than three years in order to prepare for such an event, particularly in respect to the raising of finances to assist people travelling the great distances from Europe and North America.

It is, therefore, suggested that the Conference endorse the proposal (in principle but without definite commitment) to hold the 1977 Seminar in Sydney, Australia, in order that the people concerned might begin preparations as soon as possible.

Recommended Committee

With the foregoing points of view, the Nominations Committee set about selecting the International Deaf-Blind Committee, 1971-1974. The three basic criteria for selection were:

1. Leadership Potential—i.e., people in a position of leadership in an administrative framework and able to assume a leadership role in the Committee's procedures.
2. Resource Potential—i.e., the availability of time and financial support to work towards the programming of the 1974 Conference at Condover.
3. Regional Representation—i.e., to cover as many world regions as possible, bearing in mind the proportion and scope of education for the deaf-blind in the regions.

Committee

Dr. Edward J. Waterhouse, Chairman—U.S.A.
Mr. S. O. Myers, O.B.E.—England
Dr. Peter J. Salmon—W.C.W.B.
Mr. Stewart E. Armstrong—Canada
Mr. Johannes Van Dijk—Netherlands
Mr. Theo Pauw—South Africa
Dr. William D. May—U.S.A.
Miss K. Andersen—Denmark
Mr. Keith W. Watkins—Australia
Mr. Geoffrey E. Salisbury—Developing Countries
Mr. Michael Colborne-Brown—England

Moved: That this report, including the above Committee, be accepted.

It was then moved (Dr. J. Van Dijk) and carried that Dr. Jean Kenmore be included on the Committee (representing A.F.O.B. in Europe).

Consultants to the Committee on Services for the Deaf/Blind of the World Council for the Welfare of the Blind

Following a report from Dr. Peter J. Salmon, Chairman of the above Committee, a list of Consultants to the Committee was presented. These nominations were:

Mr. W. Marhauer—Germany
Mr. A. Magill—Canada
Dr. Sadako Imamura—Japan
Mr. Geoffrey E. Salisbury—Developing Countries
Mr. Keith Watkins—Australia

KEITH W. WATKINS, *Chairman*

REPORT OF RESOLUTIONS COMMITTEE

The Congress approved unanimously the following resolutions presented by its Resolutions Committee:

General Resolution

It is universally agreed that all children have a right to education and that citizens of all states should provide a full educational service. Special efforts are needed to provide a continuum of services and facilities in education, health, and welfare for deaf-blind children and, indeed, for multi-handicapped children of all types. This conference recommends that appropriate measures should be taken in all countries to ensure, according to the pattern of culture and development of each country, that the following facilities are provided:

(i) Early diagnosis and evaluation, with some form of registration or notification, so that immediate action can be taken to provide appropriate help to all handicapped children and their families.

(ii) Parent-family counseling.

(iii) Pre-school education at home or in nursery schools or both.

(iv) An educational program so flexible and varied that the unique needs of each child can be met.

(v) A service of vocational assessment to ensure that, at the end of school life, all children have opportunities of work or occupation according to their abilities.

(vi) A humane system of complete care for children and adults whose handicaps are so severe that some form of institutional care is desirable or essential.

(vii) Consultations with parents or guardians at all stages of the children's progress.

(viii) Services of publicity and information so that a well-informed public (professional and lay) can assure appropriate action for each child as soon as a need has been established.

The conference wishes to emphasize certain features of this General Resolution with the following Special Resolutions:

1. *Professional Publicity.* A service of publicity should be set up so that:

   (a) Successful or experimentally interesting features of individual existing services together with reports on research can become known to all such services.

   (b) The large amount of research into child development and education is studied and its implications made available in such forms that any positive results can be used by parents, teachers, doctors, social workers.

At present, this specialized publicity can be provided through national professional magazines, "Children of the Silent Night," and the European News Letter. The possibility should be explored of using one existing, internationally known professional magazine for the publication of important articles and information concerning multi-handicapped children.

We know that the enormous increase of children handicapped by Rubella in the U.S.A. has led to an important national effort to establish centers and services for these children. It is hoped that the Federal Office responsible for this effort will be able to diffuse any important information to all countries interested in developing and improving their own services.

2. *General Publicity*

   Every media should be utilized so that the general public, locally and nationally, is kept well informed of developments in the care of deaf-blind and multi-handicapped children so that the needs of these children are fully understood and accepted and so that, as adults, they will be able to take part in community life to the full extent of their capabilities and potential.

3. *Education and Training*

   In order to give deaf-blind children all the chances for optimal development, physically, emotionally, and intellectually, education programs of great variety and flexibility should be developed to meet the many varied and individual needs of these children. Severely retarded children should not be excluded from school until they have had the benefit of a long period of careful evaluation. Children making good progress should be transferred to other more suitable school programs.

It should be emphasized that all programs should be carried out in cooperation with parents and, wherever possible, located within their own communities.

Since education and training of multi-handicapped children require teachers and allied professional workers to have positive attitudes and good insight, training courses for the various types of staff should be affiliated to those schools able to offer appropriate training.

4. *A Special Resolution* concerning newly independent countries, fully supported by all members of this International Congress:

   (a) These countries are urge[illegible] provision for deaf-blind and for multi-handic[illegible]ildren.
   (b) Surveys should be initiated by an international agency, or agencies, to ascertain the incidence and basic needs of these children.
   (c) Subject to the findings of such surveys, demonstration units should be established in appropriate areas in collaboration with the governments concerned.

S. O. Myers, O.B.E., Chairman—United Kingdom
Miss M. A. Henham-Barrow, O.B.E.—United Kingdom
Dr. Johannes Van Dijk—Netherlands
Mr. Robert M. Dantona—U.S.A.
Mr. Geoffrey E. Salisbury—Zambia

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